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Twelve new species and one newly recorded species of the spider genus *Araneus* (Araneae: Araneidae) from Japan

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Abstract — Twelve new species are described from Japan under the names, *A. nojimai, A. tsurusakii, A. ryukyuanus, A. borealis A. iriomotensis, A. yasudai, A. hoshi, A. komi, A. ogatai, A. miyashitai, A. mayumiae, A. amabilis. In addition, A. acusisetus* Zhu & Song 1994 is newly recorded from Japan..

Key words — Araneidae, *Araneus*, new species, new records, Japan.

Up to the present, a total of 35 species of the spider genus *Araneus* have been known to exist in Japan (Tanikawa 2000). After examining many spider specimens collected from various parts of Japan, I recognized twelve new species and one newly recorded species of *Araneus*, which will be described in the present paper. Three of the twelve new species which were misidentified by Japanese araneologists (see the text) are *Araneus viperifer* Schenkel 1963, *A. triguttatus* (Fabricius 1775), and *A. tartaricus* Kroneberg 1875. Close examination revealed that they are new to science. The one newly recorded species is *A. acusisetus* Zhu & Song 1994 described from China based on a single male specimen. Although this spider is rather common in Japan, it has so far been treated as an unknown spider.

Araneus is a large genus containing numerous species. Many new genera have been described and many species have been moved to those genera from *Araneus* with the advancement of taxonomical studies. Over six hundred species described from all over the world still remain in *Araneus*. There are many species that have distinct features and seem to be preferable to be moved to other genera. On the other hand, unnecessary splitting genera just leads further splitting and eventually to having almost each species in its own genus (Levi 1973). Careful and further study using phylogenetic data is required to revise the spiders of *Araneus*. In this paper, I use *Araneus* in its broad sense following Levi (1973).

All the type specimens designated in this paper are deposited in the collection of the Zoological Department of National Science Museum, Tokyo (NSMT).

Description

Family Araneidae
Genus *Araneus*

Araneus nojimai new species
[Japanese name: Mame-onigumo]
(Figs. 1–2, 9–13)

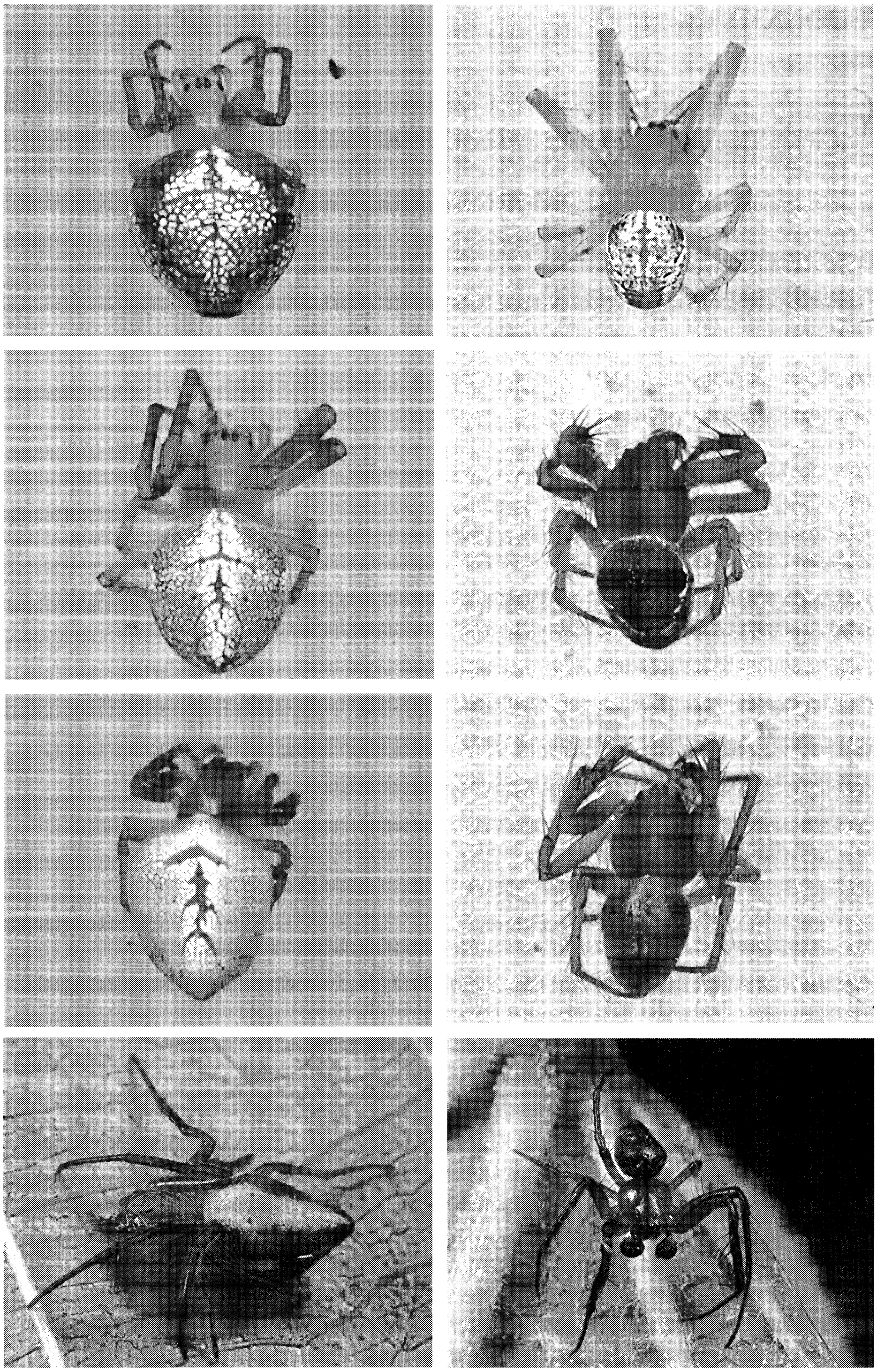
Araneus sp.: Yaginuma 1985, p. 130; Yaginuma 1986a, p.101, pl. 24, fig. 6, p. 102, fig. 54–3; Chikuni 1989, p. 68, fig. 20.

Type series. Holotype: ♀, Mt. Kenashiyama, Shinjo-son, Maniwa-gun, Okayama Pref., 1-VI-1994, K. Nojima leg. (NSMT-Ar 4862). Paratypes: 1♂, 3-VI-1985 (NSMT-Ar 4863), 1♂, 17-VI-1985, (NSMT-Ar 4864), 1♀, 24-VI-1985 (NSMT-Ar 4865), Mt. Monbetsu, Monbetsu-shi, Hokkaido, N. Tsurusaki leg. 1♀, Lake Mashu-ko, Teshikaga-cho, Kawakami-gun, Hokkaido, 14-VII-1977, K. Kumada leg. (NSMT-Ar 4866). 1♀, Hanayama-mura, Kurihara-gun, Miyagi Pref., 5-V-1985, A. Tanikawa leg. (NSMT-Ar 4867). 1♀, Katashina-mura, Tone-gun, Gunma Pref., 3-5-VII-1981, A. Tanikawa leg. (NSMT-Ar 4868). 1♂, Mt. Mitake, Ome-shi, Tokyo, 9-V-1995, Y. Arakane leg. (NSMT-Ar 4869). 1♂, Mt. Mikuni, Inabu-cho, Kitashitara-gun, Aichi Pref., 29-V-1994, K. Ogata leg. (NSMT-Ar 4870). 1♂, Onbara, Kamisaibara-son, Tomata-gun, Okayama Pref., 13-VI-1990, K. Nojima leg. (NSMT-Ar 4871).

Diagnosis. The present new species closely resembles *A. borealis* n. sp. in general appearance, but can be separated from the latter by having copulatory openings facing ventrally (Figs. 9–10) and having a terminal apophysis with a digitiform appendix (Fig. 11, d). *A.*

borealis has copulatory openings facing inward (Fig. 28) and a terminal apophysis without a digitiform appendix (Fig. 30).

Description[based on the female holotype and one of

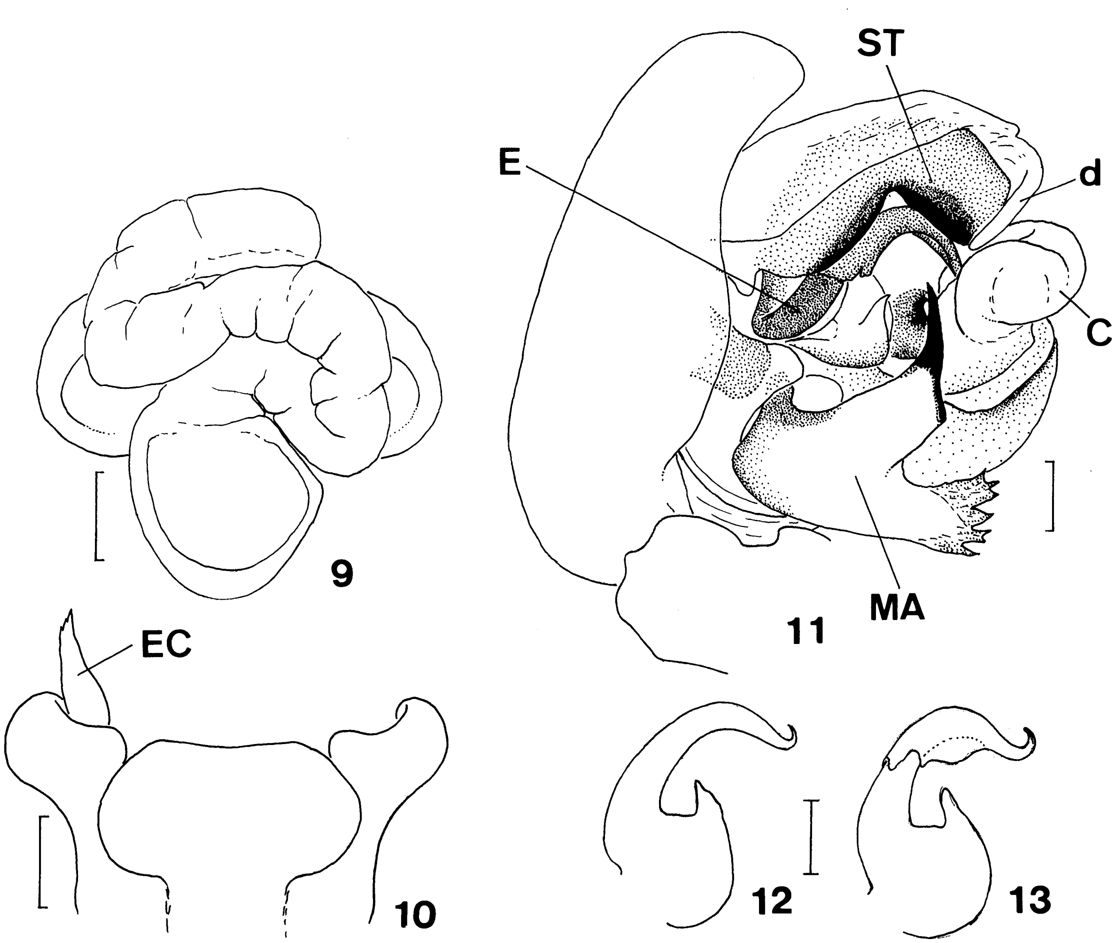


Figs. 1–8. Habitus — 1(Top left), *Araneus nojimai* n. sp., female (holotype: NSMT-Ar 4862); 2(top right), same, male (paratype: NSMT-Ar 4863); 3(upper middle left), *A. tsurusakii* n. sp., female (holotype: NSMT-Ar 4872); 4(upper middle right), same, male (paratype: NSMT-Ar 4874); 5(lower middle left), *A. ryukyuanus* n. sp., female (holotype: NSMT-Ar 4881); 6(lower middle right), same, male (paratype: NSMT-Ar 4883); 7(bottom left), same, other female on a leaf; 8(bottom right), same, other male on a leaf.

male paratypes from Hokkaido (NSMT-Ar 4863)]. Measurements (in mm). Body ♀5.41, ♂3.70 long. Carapace ♀1.86, ♂2.00 long; ♀1.58, ♂1.71 wide. Length of legs [female holotype/male paratype; tarsus + metatarsus + tibia + patella + femur = total]: I, 0.72 + 1.44 + 1.50 + 0.80 + 1.86 = 6.32/0.76 + 1.71 + 1.76 + 0.87 + 2.13 = 7.23; II, 0.66 + 1.20 + 1.24 + 0.71 + 1.64 = 5.45/0.69 + 1.51 + 1.58 + 0.76 + 1.92 = 6.46; III, 0.50 + 0.60 + 0.70 + 0.50 + 1.12 = 3.42/0.49 + 0.80 + 0.80 + 0.53 + 1.20 = 3.82; IV, 0.57 + 1.05 + 1.06 + 0.60 + 1.56 = 4.84/0.58 + 1.31 + 1.29 + 0.64 + 1.71 = 5.53. Abdomen ♀3.80, ♂1.76 long; ♀3.72, ♂1.58 wide.

Female and male. Carapace longer than wide (length/width ♀1.18, ♂1.17). Median ocular area wider than long (length/width ♀0.83, ♂0.91); wider in front (female) or wider behind (male) (anterior width/posterior width ♀0.91, ♂1.05). Chelicera with 4 promarginal and 3 retromarginal teeth. Labium wider than long (length/width ♀0.76, ♂0.71). Sternum longer than wide (length/width ♀1.09, ♂1.19). Length of leg I/length of carapace ♀3.40, ♂3.62. Male palp: terminal apophysis with a thin and weekly sclerotized digitiform appendix (Fig. 11, d). Subterminal apophysis large and sclerotized (Fig. 11, ST). Basal part of embolus with small triangular appendix (Fig. 11, E). Median apophysis V-shaped, one tip sharpened and the other finely splitted (Fig. 11, MA). Abdomen longer than wide (length/width ♀1.02, ♂1.11). Epigynum with a winding scape, copulatory pore facing ventrally (Figs. 9–10).

Coloration and markings in alcohol. Female and male. Carapace light brown. Dorsum of abdomen brown



Figs. 9–13. *Araneus nojimai* n. sp. — 9, Epigynum, ventral view (holotype: NSMT-Ar 4862); 10, same, posterior view (paratype: NSMT-Ar 4868; EC: embolus cap); 11, male palp, prolateral view (paratype: NSMT-Ar 4863; C: conductor, d: digitiform appendix of terminal apophysis, E: embolus, MA: median apophysis, ST: subterminal apophysis); 12, embolus, without cap (paratype: NSMT-Ar 4871); 13, same, with cap (paratype: NSMT-Ar 4870). (Scales: 0.1mm)

mottled with white, and with dark brown folium (Figs. 1–2).

Remarks. The embolus with a cap before mating (Fig. 13), and the cap remained at copulatory openings of epigynum after mating (Figs. 10, 12). Embolus cap without a thin appendix (Fig. 13).

The specimens described under the name of *Araneus* sp. by Yaginuma (1985) should be referred to *A. nojimai* n. sp. *Araneus triguttatus* Fabricius 1973 has been recorded from various parts of Japan ever since. Yaginuma pointed out that the features of the Japanese specimens, which had been identified as *A. triguttatus*, did not agree with the European specimens. He treated the Japanese specimens of *A. triguttatus* as *Araneus* sp. Judging from the figure in Yaginuma (1985), *Araneus* sp. has rather large copulatory openings. This condition is not coinciding with that given in some other taxonomic works of *A. triguttatus* in Japan (e.g. Yaginuma 1960; Saito 1934). On the other hand, this characteristic is well accordance with that of *A. nojimai* n. sp. described here.

Distribution. Japan (Hokkaido, Honshu, Kyushu)

Etymology. The species is dedicated to Mr. Koichi Nojima, Osaka, who collected the holotype.

Araneus tsurusakii new species
[Japanese name: Kara-onigumo]
(Figs. 3–4, 14–18)

Araneus viperifer: Yaginuma 1967, p. 94, fig. 2; Yaginuma 1986a, p. 101, pl. 24, fig. 5, p. 102, fig. 2; Chikuni 1989, p. 68, fig. 19, p. 207. [nec Schenkel 1963, misidentification]

Type series. Holotype: ♀, Mt. Monbetsu, Monbetsu-shi, Hokkaido, 13-VI-1986, N. Tsurusaki leg. (NSMT-Ar 4872). Pratypes: 1♀, Engaru-cho, Monbetsu-gun, Hokkaido, 30-VI-1985, N. Tsurusaki leg. (NSMT-Ar 4873). 1♂, same data as holotype (NSMT-Ar 4874). 1♂, Lake Utonai, Tomakomai-shi, Hokkaido, 19-VII-1985, N. Tanaka leg. (NSMT-Ar 4944). 1♀, 7-VII-1985 (NSMT-Ar 4875), 1♀1♂, 1-VI-1986 (NSMT-Ar 4876), Lake Izunuma, Hasama-cho, Tome-gun, Miyagi Pref., A. Tanikawa leg. 1♂, Tokyo University Forest at Tanashi, Tanashi-shi, Tokyo, V-1995, T. Hiramatsu leg. (NSMT-Ar 4877). 1♂, Wakasugi-toge, Nishiawakura-son, Aida-gun, Okayama Pref., 2-VI-1990, K. Nojima leg. (NSMT-Ar 4878). 1♀, Aoyagi, Kamo-cho, Tomata-gun, Okayama Pref. 17-V-1990, K. Nojima leg. (NSMT-Ar 4879). 1♀, Enjo, Kamogawa-cho, Mitsu-gun, Okayama Pref., 7-VI-1995, K. Nojima leg. (NSMT-Ar 4880).

Diagnosis. The present new species resembles *A. ryukyuanus* n. sp., but can be separated from the latter by the following points. Copulatory openings are facing posteriorly in *A. tsurusakii* (Figs. 14–15), but ventrally in *A. ryukyuanus* (Figs. 19–20). Embolus of male palp is distally sharpened in *A. tsurusakii* (Figs. 16–18), but slightly swollen in *A. ryukyuanus* (Fig. 21, E).

Description [based on the female holotype and one of male paratypes from Hokkaido (NSMT-Ar 4874)]. Measurements (in mm). Body ♀4.75, ♂3.36 long. Carapace ♀1.96, ♂1.76 long; ♀1.60, ♂1.50 wide. Length of legs [female holotype/male paratype; tarsus + metatarsus + tibia + patella + femur = total]: I, 0.63 + 1.45 + 1.73 + 0.85 + 2.10 = 6.76/0.56 + 1.31 + 1.51 + 0.78 + 1.91 = 6.07; II, 0.60 + 1.33 + 1.45 + 0.80 + 1.93 = 6.11/0.52 + 1.22 + 1.47 + 0.69 + 1.87 = 5.77; III, 0.44 + 0.74 + 0.73 + 0.54 + 1.25 = 3.70/0.41 + 0.68 + 0.69 + 0.44 + 1.16 = 3.38; IV, 0.48 + 1.23 + 1.18 + 0.70 + 1.78 = 5.37/0.44 + 1.04 + 1.06 + 0.58 + 1.58 = 4.70. Abdomen ♀3.17, ♂1.88 long; ♀2.70, ♂1.52 wide.

Female and male. Carapace longer than wide (length/width ♀1.22, ♂1.17). Median ocular area wider than long (length/width ♀0.90, ♂0.95); almost same width in front as behind (anterior width/posterior width ♀0.98, ♂1.00). Chelicera with 4 promarginal and 3 retromarginal teeth. Labium wider than long (length/width ♀0.76, ♂0.74). Sternum longer than wide (length/width ♀1.13, ♂1.13). Length of leg I/length of carapace ♀3.45, ♂3.45. Male palp: terminal apophysis with a thin and weekly sclerotized digitiform appendix (Fig. 16, d). Subterminal apophysis large and well sclerotized (Fig. 16, ST). Basal part of embolus without an appendix (Fig. 16, E). Median apophysis V-shaped, one tip sharpened and the other finely splitted (Fig. 16, MA). Abdomen longer than wide (length/width ♀1.17, ♂1.24), posterior end pointed. Epigynum with winding scape, copulatory pore facing posteriorly (Figs. 14–15).

Coloration and markings in alcohol. Female and male. Carapace light brown. Dorsum of abdomen light brown with white markings (Figs. 3–4).

Remarks. Male embolus with a cap before mating, and the cap remained at copulatory openings of epigynum after mating (Fig. 17). Embolus cap with a thin appendix (Fig. 18).

Araneus viperifer Schenkel 1963 recorded from Japan by Yaginuma (1967) should be referred to *A. tsurusakii* n. sp. I examined the holotype of *A. viperifer* in Museum National d'Histoire Naturelle, Paris, and came to conclusion that *A. viperifer* described by Yaginuma (1967) was not identical with *A. viperifer* Schenkel 1963. In the holotype of *A. viperifer*, the copulatory openings are facing diagonally (Fig. 79), but

in the Japanese specimen, they are facing posteriorly. Yaginuma (1985, 1986) and Chikuni (1989) noted that the epigynum of *A. viperifer* (=*A. tsurusakii* n. sp.) was often furnished with appendices of the epigynum. They are not appendices but embolus caps which remain after mating (see also *A. nojimai* n. sp.).

Distribution. Japan (Hokkaido, Honshu)

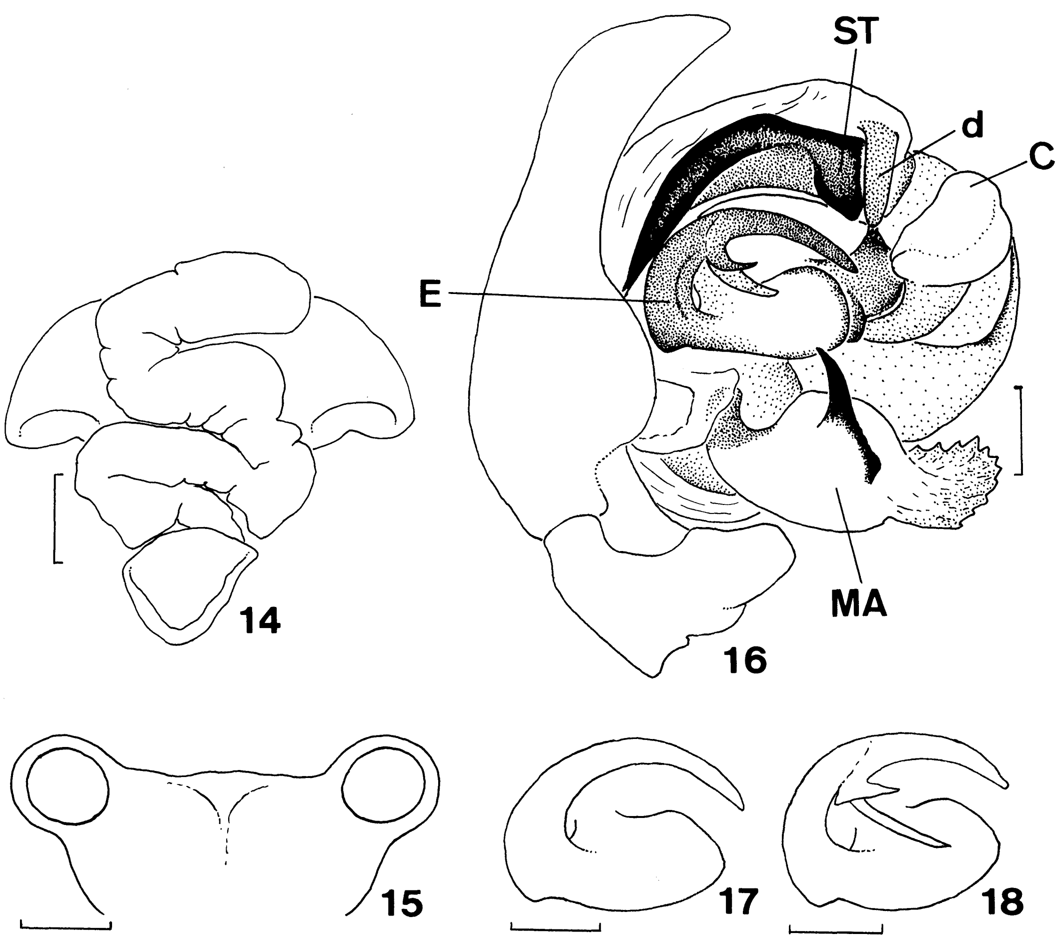
Etymology. The species is dedicated to Dr. Nobuo Tsurusaki, Tottori University, who collected the holotype.

Araneus ryukyuanus new species
[Japanese name: Ryukyu-onigumo]
(Figs. 5–8, 19–21)

Type series. Holotype: ♀, Oku, Kunigami-son, Okinawa Is., Okinawa pref., 31-III-1997, A. Tanikawa leg. (NSMT-Ar 4881). Paratypes: 1 ♀, Tokunoshima Is., Oshima-gun, Kagoshima Pref. 8-V-1997, T. Sasaki leg. (NSMT-Ar 4882). 1 ♀, same locality as holotype, 30-III-1997, T. Sasaki leg. (NSMT-Ar 4945), 1 ♀ 1♂, same locarity as holotype, 31-III-1997, A. Tanikawa leg. (NSMT-Ar 4883). 1 ♀ 2♂, Near Benoki Dam, Kunigami-son, Okinawa Is., Okinawa Pref., 30-III-1997, A. Tanikawa leg. (NSMT-Ar 4884). 2♂, Okuma, Kunigami-son, Okinawa Is., Okinawa Pref., 2-IV-2000, A. Tanikawa leg. (NSMT-Ar 4885). 1♂, Kume Is., Okinawa Pref., 19-III-1995, T. Hiramatsu leg. (NSMT-Ar 4886).

Diagnosis. The present new species resembles *A. tsurusakii* n. sp. As for the distinguishing feature, see the diagnosis of *A. tsurusakii*.

Description[based on the female holotype and one of male paratypes from Okinawajima Is. (NSMT-Ar 4883)]. Measurements (in mm). Body ♀5.47, ♂3.32



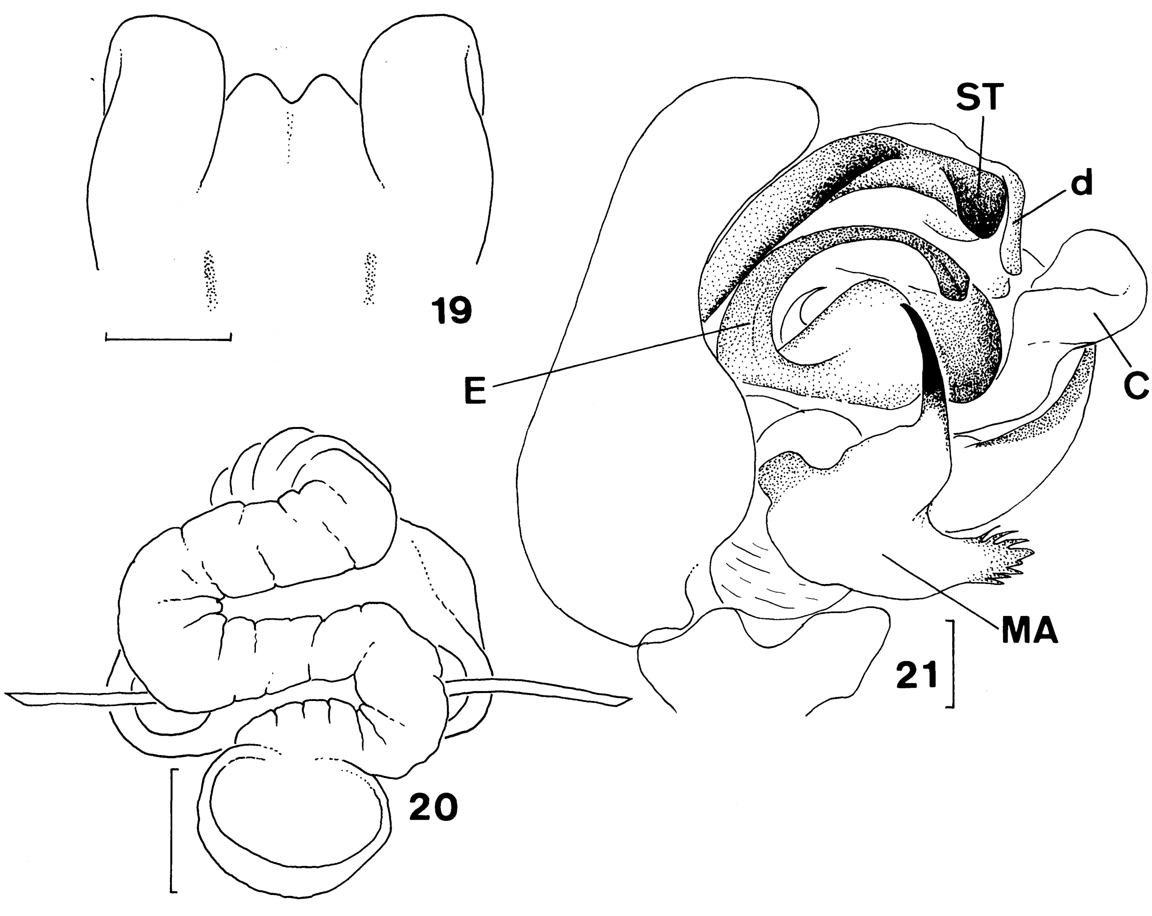
Figs. 14–18. *Araneus tsurusakii* n. sp. — 14, Epigynum, ventral view (holotype: NSMT-Ar 4872); 15, same, posterior view (paratype: NSMT-Ar 4879); 16, male palp, prolateral view (paratype: NSMT-Ar 4878; C: conductor, d: digitiform appendix of terminal apophysis, E: embolus, MA: median apophysis, ST: subterminal apophysis); 17, embolus without cap (paratype: NSMT-Ar 4944); 18, same, with cap (paratype: NSMT-Ar 4876). (Scales: 0.1mm)

long. Carapace ♀1.89, ♂1.62 long; ♀1.49, ♂1.45 wide. Length of legs [female holotype/male paratype; tarsus + metatarsus + tibia + patella + femur = total]: I, 0.63 + 1.44 + 1.50 + 0.82 + 1.86 = 6.25/0.62 + 1.54 + 1.60 + 0.82 + 1.87 = 6.45; II, 0.57 + 1.30 + 1.34 + 0.76 + 1.70 = 5.67/0.58 + 1.36 + 1.46 + 0.72 + 1.72 = 5.84; III, 0.40 + 0.68 + 0.64 + 0.50 + 1.06 = 3.28/0.40 + 0.62 + 0.62 + 0.44 + 1.03 = 3.11; IV, 0.45 + 1.14 + 1.04 + 0.62 + 1.50 = 4.75/0.42 + 1.06 + 1.00 + 0.54 + 1.40 = 4.42. Abdomen ♀4.25, ♂1.92 long; ♀2.90, ♂1.40 wide.

Female and male. Carapace longer than wide (length/width ♀1.27, ♂1.11). Median ocular area wider than long (length/width ♀0.95, ♂0.89); almost same width in front as behind (anterior width/posterior width ♀0.98, ♂1.00). Chelicera with 5 (female) or 4 (male) promarginal and 3 retromarginal teeth. Labium wider than long (length/width ♀0.68, ♂0.65). Sternum longer than wide (length/width ♀1.16, ♂1.16). Length of leg I/length of carapace ♀3.31, ♂3.98. Male palp: terminal apophysis with a thin and weekly sclerotized digitiform appendix (Fig. 21, d). Subterminal apophysis large and well sclerotized (Fig. 21, ST). Basal part of embolus without an appendix (Fig. 21, E). Median apophysis V-shaped, one tip sharpened and the other finely splitted (Fig. 21, MA). Abdomen longer than wide (length/width ♀1.47, ♂1.37), posterior end pointed. Epigynum with a winding scape, copulatory pore facing ventrally (Figs. 19–20).

Coloration and markings in alcohol. Female. Carapace light brown. Dorsum of abdomen whitish brown (Fig. 5). Male. Carapace light brown. Dorsum of abdomen brown (Fig. 6).

Notes. Embolus with a cap before mating, and the cap remained at copulatory openings of epigynum after



Figs. 19–21. *Araneus ryukyuanus* n. sp. — 19, Epigynum, posterior view (paratype: NSMT-Ar 4883); 20, same, ventral view (holotype: NSMT-Ar 4881); 21, male palp, prolateral view (paratype: NSMT-Ar 4883; C: conductor, d: digitiform appendix of terminal apophysis, E: embolus, MA: median apophysis, ST: subterminal apophysis). (Scales: 0.1mm)

mating (Fig. 20). Embolus cap with a thin appendix.

Distribution. Japan (Tokunoshima Is., Okinawa Is.)

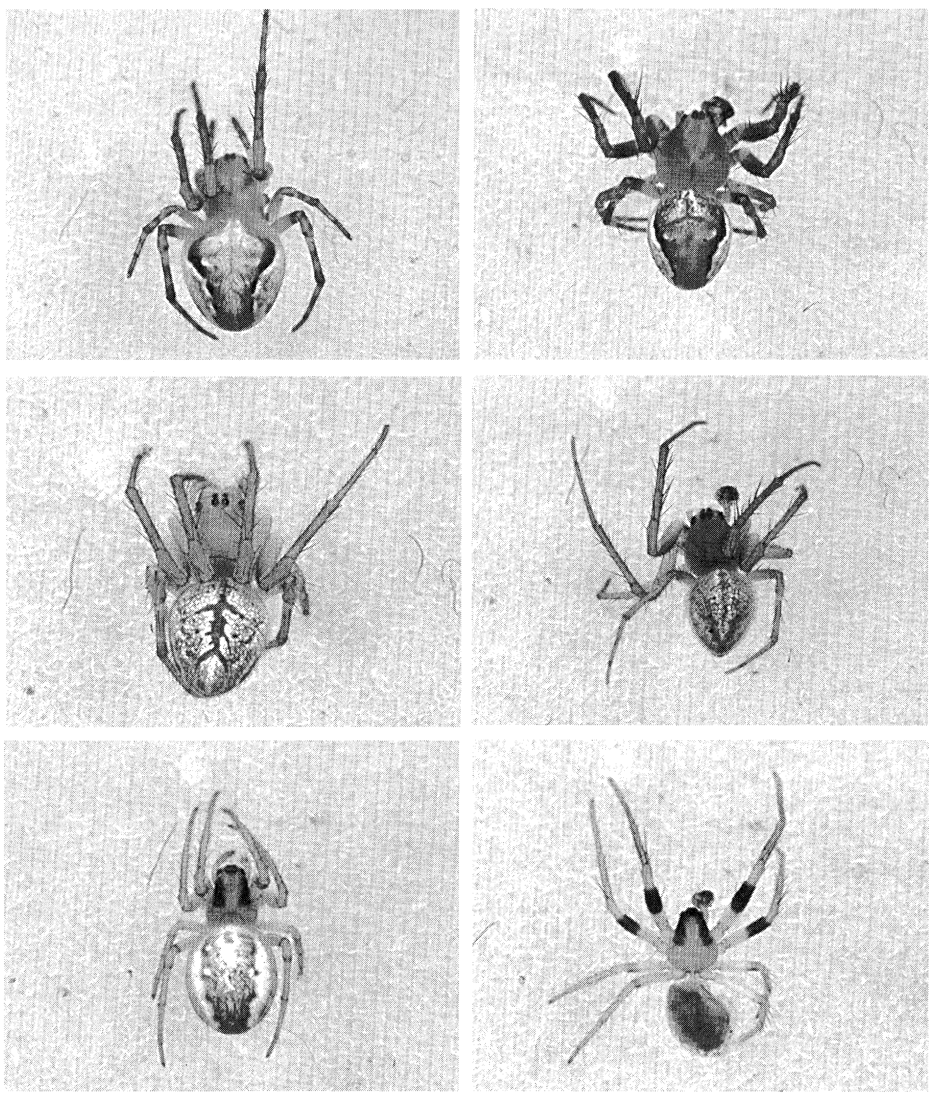
Etymology. The specific name is derived from the native area of the species.

Araneus borealis new species
[Japanese name: Kitamame-onigumo]
(Figs. 22–23, 28–31)

Type series. Holotype: ♀, Katashina-mura, Tone-gun, Gunma Pref., 3-5-VII-1981, A. Tanikawa leg. (NSMT-Ar 4887). Paratypes: 1♂, Horoshika-toge, Kamishihoro-cho, Kato-gun, Hokkaido, 9-VI-1985, M. Matsuda leg. (NSMT-Ar 4888). 1♀, Otofuke River, Kamishihoro-cho, Kato-gun, Hokkaido, 29-VI-1988, M. Matsuda leg. (NSMT-Ar 4889). 1♀, Yukomanbetsu, Higashikawa-cho, Kamikawa-gun, Hokkaido, 28-VII-1985, N. Tanaka leg. (NSMT-Ar 4890). 1♂, same data as holotype (NSMT-Ar 4891).

Diagnosis. The present new species resembles *A. nojimai* n. sp. As for the distinguishing feature, see the diagnosis of *A. nojimai*.

Description[based on the female holotype and one of male paratypes from Gunma Pref. (NSMT-Ar 4891)]. Measurements (in mm). Body ♀5.00, ♂4.23 long. Carapace ♀2.11, ♂1.87 long; ♀1.64, ♂1.73 wide. Length of legs [female holotype/male paratype; tarsus + metatarsus + tibia + patella + femur = total]: I, 0.69 + 1.73 + 1.83 + 0.95 + 2.29 = 7.49/0.71 + 1.65 +



Figs. 22–27. Habitus — 22 (Top left), *Araneus borealis* n. sp., female (holotype: NSMT-Ar 4887); 23 (top right), same, male (paratype: NSMT-Ar 4891); 24 (middle left), *Araneus iriomotensis* n. sp., female (holotype: NSMT-Ar 4892); 25 (middle right), same male (paratype: NSMT-Ar 4893); 26 (bottom left), *Araneus yasudai* n. sp., female (holotype: NSMT-Ar 4896); 27 (bottom right), same, male (paratype NSMT-Ar 4898).

1.85 + 0.90 + 2.25 = 7.36; II, 0.73 + 1.50 + 1.50 + 0.85 + 2.01 = 6.59/0.65 + 1.48 + 1.58 + 0.80 + 2.05 = 6.56; III, 0.51 + 0.81 + 0.74 + 0.58 + 1.31 = 3.95/0.48 + 0.83 + 0.78 + 0.53 + 1.30 = 3.92; IV, 0.58 + 1.40 + 1.33 + 0.75 + 2.00 = 6.06/0.55 + 1.33 + 1.28 + 0.65 + 1.80 = 5.61. Abdomen ♀3.13, ♂2.35 long; ♀2.77, ♂1.90 wide.

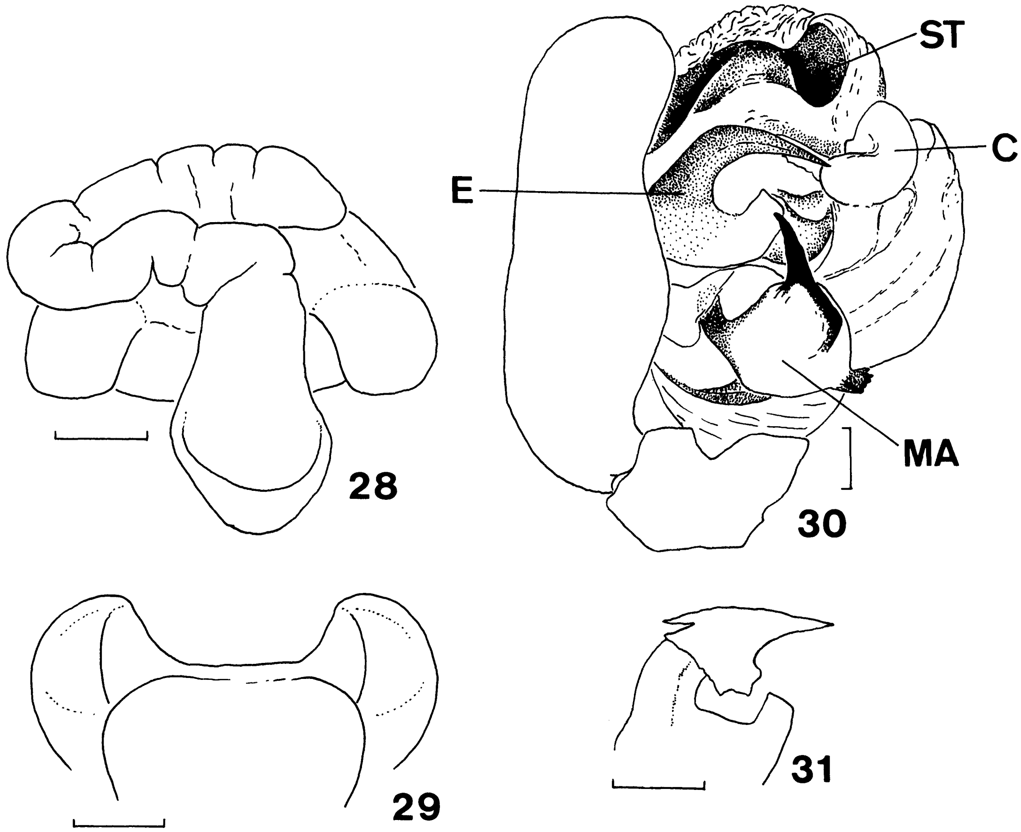
Female and male. Carapace longer than wide (length/width ♀1.28, ♂1.08). Median ocular area wider than long (length/width ♀0.95, ♂0.93); almost same width in front as behind (anterior width/posterior width ♀1.05, ♂1.03). Chelicera with 4 promarginal and 3 retromarginal teeth. Labium wider than long (length/width ♀0.71, ♂0.69). Sternum longer than wide (length/width ♀1.14, ♂1.15). Length of leg I/length of carapace ♀3.55, ♂3.94. Male palp: terminal apophysis without a digitiform appendix (Fig. 30). Subterminal apophysis large and well sclerotized (Fig. 30, ST). Basal part of embolus with an appendix (Fig. 30, E). Median apophysis V-shaped, one tip sharpened and the other finely splitted (Fig. 30, MA). Abdomen longer than wide (length/width ♀1.13, ♂1.24). Epigynum with a winding scape, copulatory pore facing inward (Figs. 28–29).

Coloration and markings in alcohol. Female. Carapace light brown. Dorsum of abdomen whitish brown with a black folium (Figs. 22–23).

Notes. Embolus with a cap before mating (Fig. 31), and the cap remained at copulatory openings of epigynum after mating. Embolus cap without a thin appendix (Fig. 31).

Distribution. Japan (Hokkaido, Honshu).

Etymology. The specific name is derived from the native area of the species. The present new species is living in northern part of Japan.



Figs. 28–31. *Araneus borealis* n. sp. — 28, Epigynum, ventral view (holotype: NSMT-Ar 4887); 29, same, dorsal view (paratype: NSMT-Ar 4889); 30, male palp, prolateral view (paratype: NSMT-Ar 4891; C: conductor, E: embolus, MA: median apophysis, ST: subterminal apophysis); 31, embolus with cap (paratype: NSMT-Ar 4888). (Scales: 0.1mm)

Araneus iriomotensis new species
[Japanese name: Iriomote-onigumo]
(Figs. 24–25, 32–35)

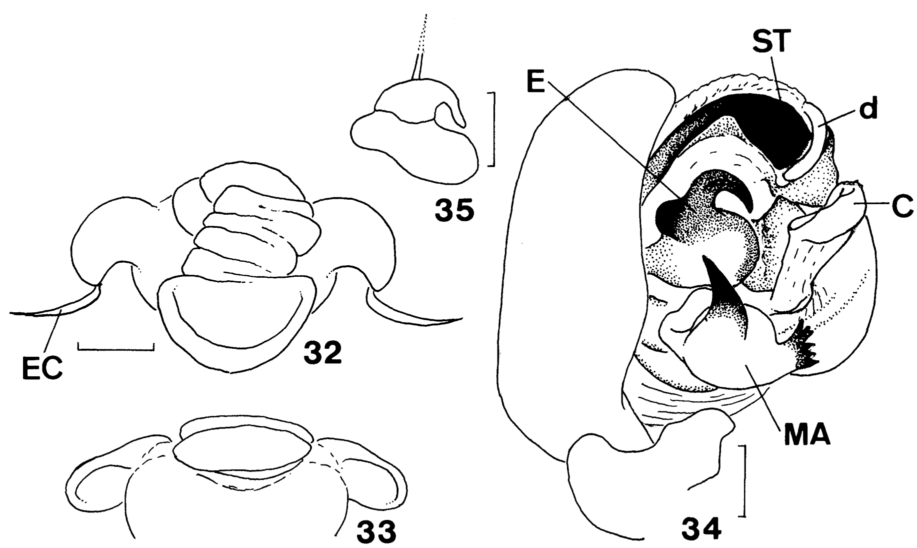
Type series. Holotype: ♀, Shirahama, Iriomotejima Is., Okinawa Pref., 31-III-1986, A. Tanikawa leg. (NSMT-Ar 4892). Paratypes: 1♀1♂, same data as holotype (NSMT-Ar 4893). 1♂, Urauchi, Iriomotejima Is., Okinawa Pref., 30-III-1982, A. Tanikawa leg. (NSMT-Ar 4894). 1♂, Funaura, Iriomotejima Is., Okinawa Pref., 31-III-1989, A. Tanikawa leg. (NSMT-Ar 4895).

Diagnosis. The present new species resembles *A. ryukyuanus* n. sp., but can be separated from the latter by the following features. Copulatory openings of epigynum is facing posteriorly in *A. iriomotensis* (Figs. 32–33), but ventrally in *A. ryukyuanus* (Figs. 19–20). Embolus of *A. ryukyuanus* (Fig. 21, E) is longer than that of *A. iriomotensis* (Fig. 34, E).

Description [based on the female holotype and one of male paratypes from Shirahama, Iriomotejima Is. (NSMT-Ar 4893)]. Measurements (in mm). Body ♀ 3.88, ♂3.48 long. Carapace ♀1.76, ♂1.64 long; ♀ 1.47, ♂1.38 wide. Length of legs [female holotype/male paratype; tarsus + metatarsus + tibia + patella + femur = total]: I, 0.62 + 1.44 + 1.56 + 0.84 + 1.98 = 6.44/0.64 + 1.71 + 1.83 + 0.84 + 2.16 = 7.18; II, 0.60 + 1.31 + 1.36 + 0.80 + 1.80 = 5.87/0.60 + 1.56 + 1.73 + 0.77 + 2.06 = 6.72; III, 0.42 + 0.68 + 0.66 + 0.53 + 1.13 = 3.42/0.40 + 0.73 + 0.76 + 0.47 + 1.29 = 3.65; IV, 0.49 + 1.13 + 1.10 + 0.64 + 1.62 = 4.98/0.44 + 1.24 + 1.24 + 0.58 + 1.69 = 5.19. Abdomen ♀2.34, ♂2.04 long; ♀1.85, ♂1.67 wide.

Female and male. Carapace longer than wide (length/width ♀1.20, ♂1.18). Median ocular area wider than long (length/width ♀0.93, ♂0.88); almost the same width in front as behind (anterior width/posterior width ♀1.02, ♂1.08). Chelicera with 4 promarginal and 3 retromarginal teeth. Labium wider than long (length/width ♀0.79, ♂0.65). Sternum longer than wide (length/width ♀1.08, ♂1.13). Length of leg I/length of carapace ♀3.66, ♂4.38. Male palp (Fig. 34): terminal apophysis with a thin and weekly sclerotized digitiform appendix (Fig. 34, d). Subterminal apophysis large and well sclerotized (Fig. 34, ST). Basal part of embolus without an appendix (Fig. 34, E). Median apophysis V-shaped, one tip sharpened and the other finely splitted (Fig. 34, MA). Abdomen longer than wide (length/width ♀1.13, ♂1.24), posterior end pointed. Epigynum (Figs. 32–33): scape not winding, copulatory pore facing posteriorly.

Coloration and markings in alcohol. Female and male. Carapace light brown. Dorsum of abdomen whitish brown, with a weak folium (Figs. 24–25).



Figs. 32–35. *Araneus iriomotensis* n. sp. — 32, Epigynum, ventral view (holotype: NSMT-Ar 4892); 33, same, posterior view (paratype: NSMT-Ar 4893); 34, male palp, prolateral view (paratype: NSMT-Ar 4893; C: conductor, d: digitiform appendix of terminal apophysis, E: embolus, MA: median apophysis, ST: subterminal apophysis); 35, embolus with cap (paratype: NSMT-Ar 4895). (Scales: 0.1mm)

Notes. Embolus with a cap before mating, and the cap remained at copulatory openings of epigynum after mating (Fig. 32). Embolus cap with a thin appendix (Fig. 35).

Distribution. Japan (Iriomotejima Is.)

Etymology. The specific name is derived from the native island of the species.

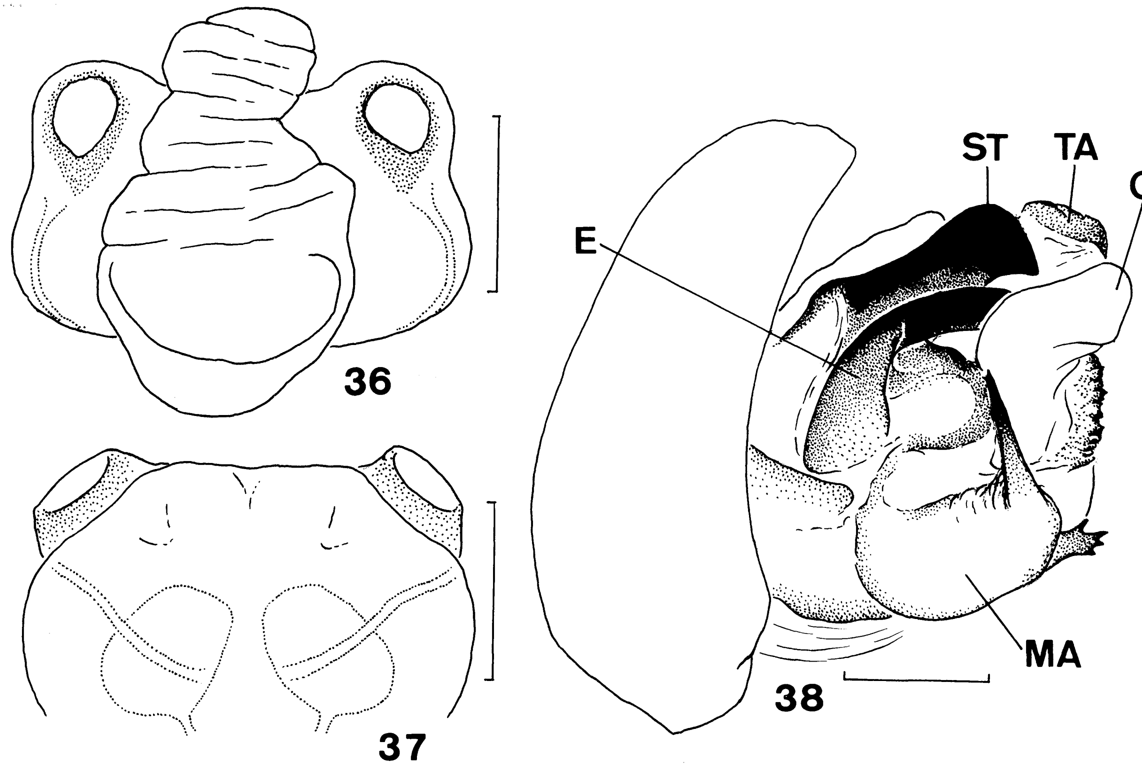
Araneus yasudai **new species**
[Japanese name: Yasuda-hime-onigumo]
(Figs. 26–27, 36–38)

Type series. Holotype: ♀, Sarobetsu Field, Teshio-cho, Teshio-gun, Hokkaido, 23-VII-1996, I. Asano leg. (NSMT-Ar 4896). Paratypes: 2♀, same data as holotype (NSMT-Ar 4897). 1♂, same locality, 8-VI-1991, N. Yasuda leg. (NSMT-Ar 4898).

Diagnosis. The present new species can be easily distinguished from the related species by having epigynum with a copulatory pore situated anteriorly and facing ventrally (Figs. 36–37), and by having a knife-shaped subterminal apophysis (Fig. 38, ST).

Description[based on the female holotype and male paratype (NSMT-Ar 4898)]. Measurements (in mm). Body ♀3.58, ♂2.71 long. Carapace ♀1.34, ♂1.15 long; ♀1.09, ♂0.93 wide. Length of legs [female holotype/male paratype; tarsus + metatarsus + tibia + patella + femur = total]: I, 0.52 + 0.93 + 0.98 + 0.57 + 1.18 = 4.18/0.50 + 0.95 + 1.05 + 0.52 + 1.19 = 4.21; II, 0.50 + 0.81 + 0.80 + 0.50 + 1.10 = 3.71/0.47 + 0.85 + 0.92 + 0.46 + 1.13 = 3.83; III, 0.38 + 0.52 + 0.44 + 0.38 + 0.76 = 2.48/0.35 + 0.49 + 0.44 + 0.32 + 0.76 = 2.36; IV, 0.41 + 0.82 + 0.79 + 0.46 + 1.11 = 3.59/0.37 + 0.73 + 0.70 + 0.37 + 1.02 = 3.19. Abdomen ♀2.28, ♂1.53 long; ♀1.90, ♂1.07 wide.

Female and male. Carapace longer than wide (length/width ♀1.23, ♂1.23). Median ocular area almost as wide as long (length/width ♀1.00, ♂1.10); wider in front than behind (anterior width/posterior width ♀1.13, ♂1.04). Chelicera with 4 (female) or 3 (male) promarginal and 3 (female) or 4 (male) retromarginal teeth. Labium wider than long (length/ width ♀0.61, ♂0.57). Sternum longer than wide (length/width ♀1.07, ♂1.09). Length of leg I/length of carapace ♀3.12, ♂3.66. Male palp (Fig. 38): terminal apophysis



Figs. 36–38. *Araneus yasudai* n. sp. — 36. Epigynum, ventral view (holotype: NSMT-Ar 4896); 37, same, posterior view (paratype: NSMT-Ar 4897); 38, male palp, prolateral view (paratype: NSMT-Ar 4898; C: conductor, E: embolus, MA: median apophysis, ST: subterminal apophysis, TA: terminal apophysis). (Scales: 0.1mm)

without a digitiform appendix (Fig. 38, TA). Subterminal apophysis knife-shaped, large and well sclerotized (Fig. 38, ST). Basal part of embolus without an appendix (Fig. 38, E). Median apophysis V-shaped, one tip sharpened and the other finely splitted (Fig. 38, MA). Abdomen longer than wide (length/width ♀ 1.20, ♂ 1.43). Epigynum (Figs. 36–37): scape not winding, copulatory pore situated anteriorly and facing ventrally.

Coloration and markings in alcohol. Female and male. Carapace light brown, both sides of cephalic part dark brown. Dorsum of abdomen light brown with a weak folium, outsides the folium white (Figs. 26–27).

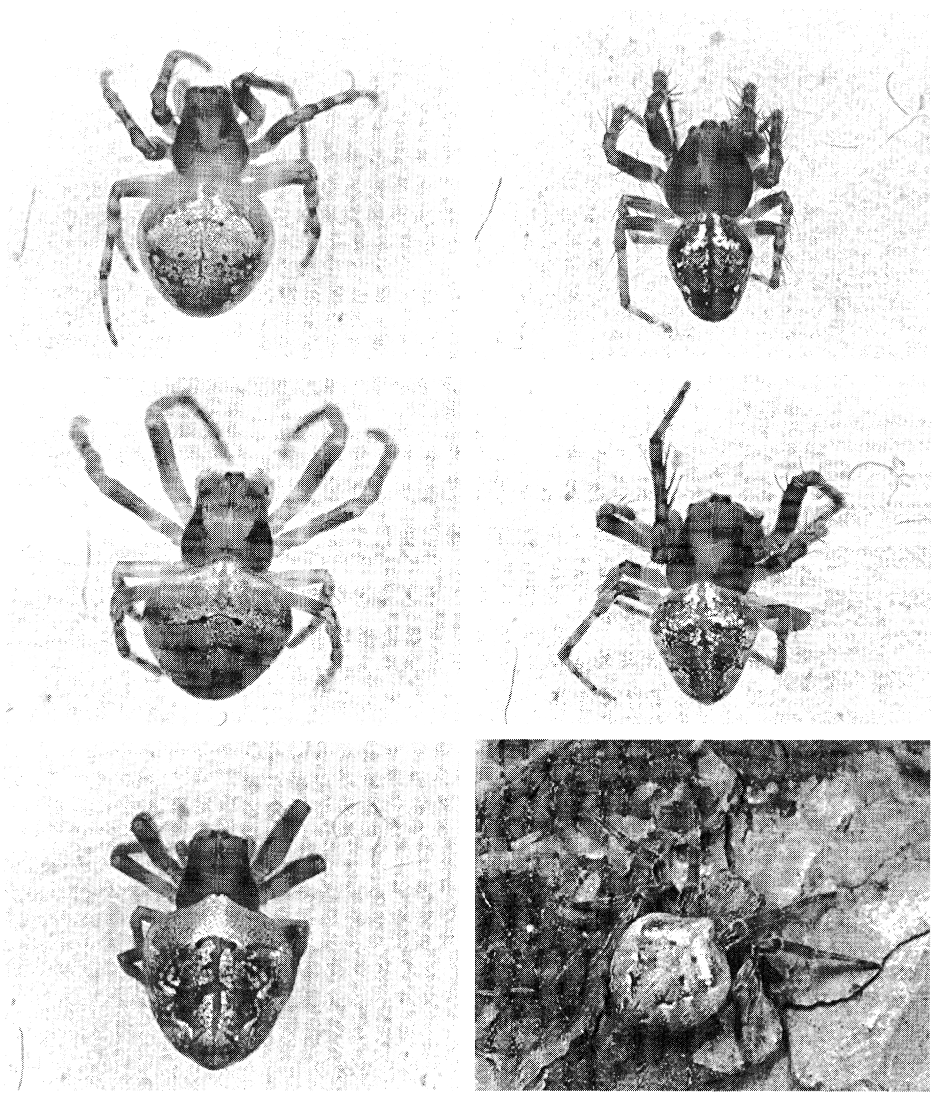
Notes. No embolus cap was found in this species.

Distribution. Japan (Hokkaido; known only from the type locality).

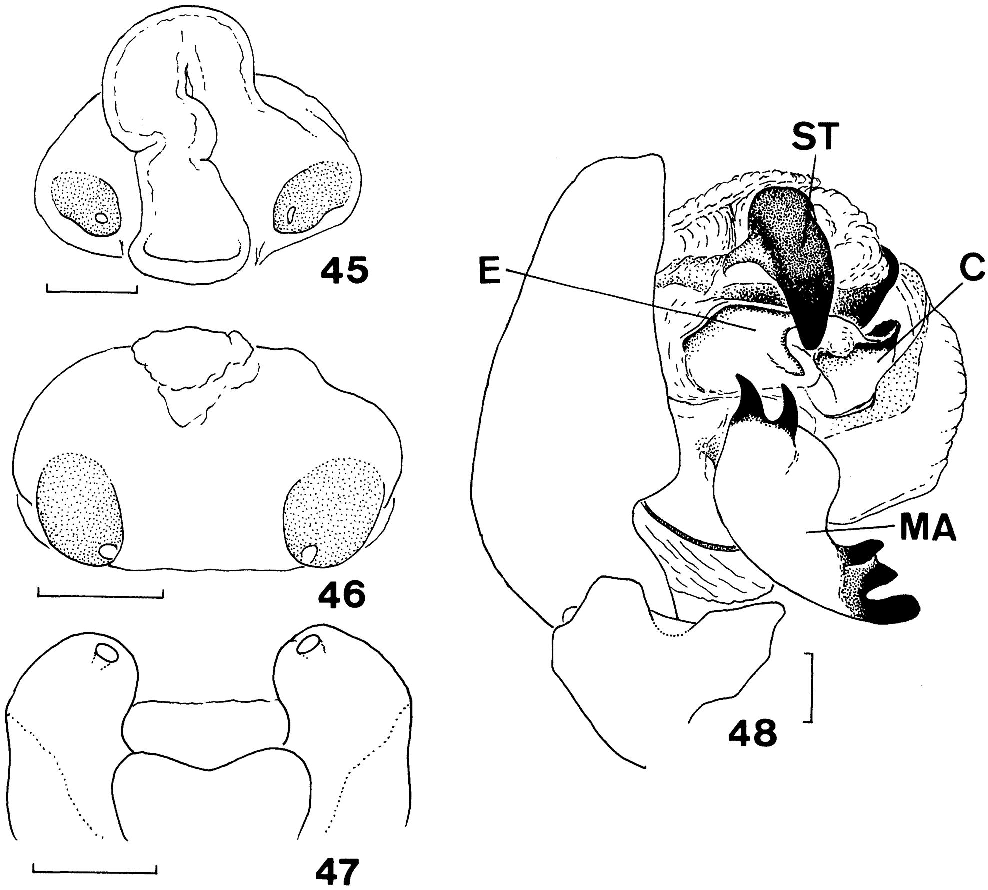
Etymology. The species is dedicated to Mr. Nobuki Yasuda, Sounkyo Visitor Center, who collected the male specimen of this species.

Araneus hoshi new species
[Japanese name: Hoshimame-onigumo]
(Figs. 39–40, 45–48)

Araneus triguttatus : Saito 1934, p. 326, pls. 13, 15, figs. 23, 66; Saito 1959, p. 90, pls. 14, 16, figs. 106a-d; Yaginuma 1960, p.55, fig. 51; [nec Fabricius 1775, misidentifica-



Figs. 39–44. Habitus. — 39 (Top left), *Araneus hoshi* n. sp., female (holotype: NSMT-Ar 4899); 40 (top right), same, male (paratype: NSMT-Ar 4903); 41 (middle left), *Araneus komi* n. sp., female (holotype: NSMT-Ar 4907); 42 (middle right), same, male (paratype: NSMT-Ar 4909); 43 (bottom left), *Araneus ogatai* n. sp., female (holotype: NSMT-Ar 4910); 44 (bottom right), same, other female.



Figs. 45–48. *Araneus hoshi* n. sp. — 45, Epigynum with scape, ventral view (holotype: NSMT-Ar 4899); 46, same without scape, ventral view (paratype: NSMT-Ar 4902); 47, same, posterior view (paratype: NSMT-Ar 4900); 48, male palp, prolateral view (paratype: NSMT-Ar 4903; C: conductor, E: embolus, MA: median apophysis, ST: subterminal apophysis). (Scales: 0.1mm)

tion]

Type series. Holotype: ♀, Shintoku-cho, Kamikawa-gun, Hokkaido, 24-VI-1981, M. Matsuda leg. (NSMT-Ar 4899). Paratypes: 1♀, Rishiri Is., Rishiri-gun, Hokkaido, 9-VII-1987, N. Tanaka leg. (NSMT-Ar 4900). 1♂, Kiritappu, Hamanaka-cho, Akkeshi-gun, Hokkaido, 12-VII-1977, K. Kumada leg. (NSMT-Ar 4901). 1♀, Nukabira, Kamishihoro-cho, Kato-gun, Hokkaido, 23-VI-1988, M. Matsuda leg. (NSMT-Ar 4902). 2♂, same data as holotype. (NSMT-Ar 4903). 1♂, Mt. Hakkoda, Aomori-shi, Aomori Pref., 17-VI-1992, H. Sakai leg. (NSMT-Ar 4904). 1♀1♂, Katashina-mura, Tone-gun, Gunma Pref., 3-5-VII-1981, A. Tanikawa leg. (NSMT-Ar 4905). 1♀, Yunomaru Highlands, Tobu-cho, Chiisagata-gun, Nagano Pref., 5-VIII-1983, K. Sato leg. (NSMT-Ar 4906).

Diagnosis. The present new species can be easily distinguished from the related species by the following points. Copulatory pore of epigynum small and situated on well sclerotized hump (Figs. 45–47). Subterminal apophysis of male palp horn-shaped (Fig. 48, ST), one tip of median apophysis bifurcated and the other tip three-pronged fork (Fig. 48, MA).

Description[based on the female holotype and one of male paratypes from Hokkaido (NSMT-Ar 4903)]. Measurements (in mm). Body ♀5.57, ♂4.00 long. Carapace ♀2.22, ♂2.00 long; ♀1.87, ♂1.76 wide. Length of legs [female holotype/male paratype; tarsus + metatarsus + tibia + patella + femur = total]: I, 0.67 + 1.64 + 1.69 + 0.96 + 2.02 = 6.98/0.64 + 1.64 + 1.63 + 0.84 + 1.96 = 6.71; II, 0.64 + 1.48 + 1.47 + 0.89 + 1.89 = 6.37/0.60 + 1.46 + 1.52 + 0.78 + 1.82 = 6.18; III, 0.47 + 0.91 + 0.76 + 0.62 + 1.34 = 4.10/0.42 + 0.82 + 0.71 + 0.53 + 1.27 = 3.75; IV, 0.53 + 1.42 + 1.29 + 0.78 + 1.87 = 5.89/0.49 + 1.32 + 1.20 + 0.67 + 1.67 = 5.35. Abdomen ♀3.36, ♂2.04 long; ♀3.16, ♂1.67 wide.

Female and male. Carapace longer than wide

(length/width ♀1.19, ♂1.14). Median ocular area wider than long (length/width ♀0.88, ♂0.95); wider in front than behind (anterior width/posterior width ♀1.09, ♂1.11). Chelicera with 4 promarginal and 3 retromarginal teeth. Labium wider than long (length/width ♀0.72, ♂0.68). Sternum longer than wide (length/width ♀1.13, ♂1.19). Length of leg I/length of carapace ♀3.14, ♂3.36. Male palp: terminal apophysis without a digitiform appendix (Fig. 48). Subterminal apophysis horn-shaped, large and well sclerotized (Fig. 48, ST). Basal part of embolus without an appendix (Fig. 48, E). Median apophysis V-shaped, one tip bifurcated and the other three-pronged fork (Fig. 48, MA). Abdomen longer than wide (length/width ♀1.06, ♂1.23). Epigynum (Fig. 45–47): Copulatory pore small and situated on well sclerotized hump.

Coloration and markings in alcohol. Female and male. Carapace brown. Dorsum of abdomen grayish brown with a folium (Figs. 39–40).

Remarks. No embolus cap was found in this species.

The specimens recorded under the name of *Araneus triguttatus* by Saito (1934) and Yaginuma (1960) should be attributed to *A. hoshi* n. sp. Saito (1934) recorded *A. triguttatus* from Hokkaido. Yaginuma (1960) mentioned Hokkaido and Honshu as the range of this species in Japan. Shinkai & Takano (1984) mentioned Hokkaido, Honshu, Shikoku, and Kyushu as the distribution area of *A. triguttatus*. Several Japanese records of *A. triguttatus*, however, are due to misidentifications (Yaginuma 1985). As compared with European specimens, black spots are present on both sides of scape in the figures of Saito (1934) and Yaginuma (1960). Judging from this characteristic, *A. triguttatus* sensu Saito (1934) and Yaginuma (1960) is identical with *A. hoshi* n. sp. described in this paper.

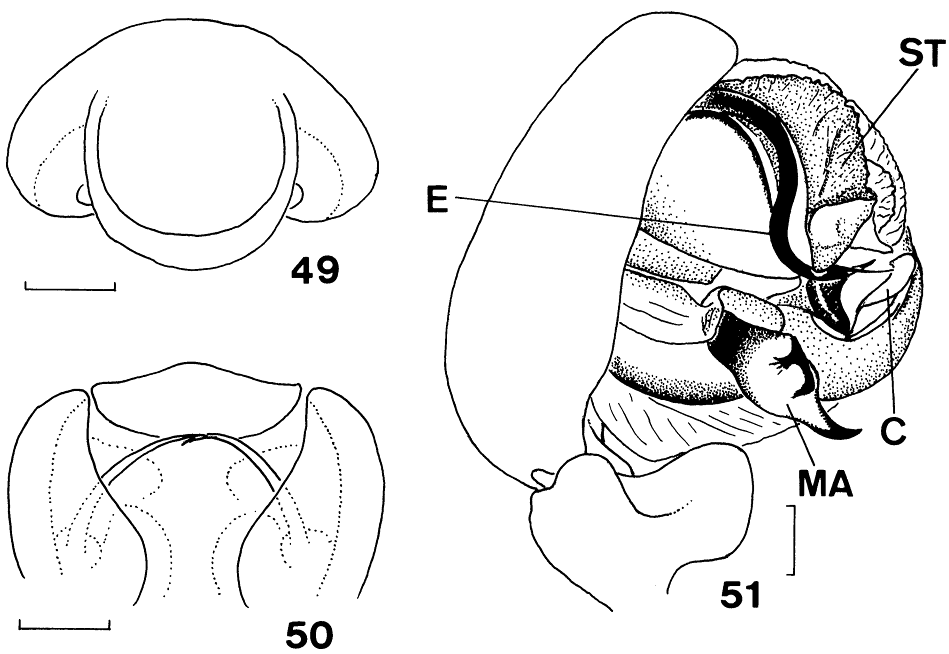
Distribution. Japan (Hokkaido, Honshu).

Etymology. The specific name is an arbitrary combination of letters.

Araneus komi new species
[Japanese name: Komi-onigumo]
(Figs. 41–42, 49–51)

Type series. Holotype: ♀, Komi, Iriomotejima Is., Okinawa Pref., 24-XII-1991, A. Tanikawa leg. (NSMT-Ar 4907). Paratypes: 1♂, Sonai, Iriomotejima Is., Okinawa Pref., 1-I-1989, A. Tanikawa leg. (NSMT-Ar 4908). 1♀1♂, same data as holotype (NSMT-Ar 4909).

Diagnosis. The present new species resembles *A. ogatai* n. sp., but can be distinguished from the latter by



Figs. 49–51. *Araneus komi* n. sp. — 49, Epigynum, ventral view (holotype: NSMT-Ar 4907); 50, same, posterior view (paratype: NSMT-Ar 4909); 51, male palp, prolateral view (paratype: NSMT-Ar 4909; C: conductor, E: embolus, MA: median apophysis, ST: subterminal apophysis). (Scales: 0.1mm)

the following point. The scape of epigynum is almost as wide as long in *A. komi* (Fig. 49), but apparently longer than wide in *A. ogatai* (Fig. 52). Posterior part of epigynum is protruding posteriorly in *A. ogatai* (Fig. 52), but not in *A. komi* (Fig. 49).

Description [based on the female holotype and one of male paratypes from Komi, Iriomotejima Is. (NSMT-Ar 4909)]. Measurements (in mm). Body ♀4.55, ♂4.15 long. Carapace ♀2.25, ♂2.20 long; ♀1.83, ♂1.73 wide. Length of legs [female holotype/male paratype; tarsus + metatarsus + tibia + patella + femur = total]: I, 0.64 + 1.38 + 1.49 + 0.98 + 1.89 = 6.38/0.67 + 1.71 + 1.73 + 1.07 + 2.09 = 7.27; II, 0.60 + 1.27 + 1.27 + 0.89 + 1.73 = 5.76/0.64 + 1.56 + 1.56 + 0.98 + 1.91 = 6.65; III, 0.67 + 1.04 + 0.98 + 0.91 + 1.69 = 5.29/0.46 + 0.81 + 0.73 + 0.62 + 1.36 = 3.98; IV, 0.51 + 1.13 + 1.02 + 0.76 + 1.58 = 5.00/0.51 + 1.29 + 1.13 + 0.71 + 1.64 = 5.28. Abdomen ♀2.93, ♂2.51 long; ♀2.93, ♂2.06 wide.

Female and male. Carapace longer than wide (length/width ♀1.23, ♂1.28), cephalic part rather swollen. Median ocular area wider than long (length/width ♀0.93, ♂0.79); wider in front than behind (anterior width/posterior width ♀1.13, ♂1.16). Chelicera with 4 promarginal and 3 retromarginal teeth. Labium wider than long (length/width ♀0.67, ♂0.81). Sternum longer than wide (length/width ♀1.07, ♂1.17). Length of leg I/length of carapace ♀2.84, ♂3.30. Male palp: terminal apophysis small and spiniform. Subterminal apophysis large and well sclerotized (Fig. 51, ST). Basal part of embolus without an appendix. Median apophysis V-shaped, both tips sharpened (Fig. 51, MA). Abdomen as long as wide in female, longer than wide in male (length/width ♀1.00, ♂1.22), with weak shoulder humps. Epigynum (Figs. 49–50): scape almost as wide as long, not wrinkled.

Coloration and markings in alcohol. Female and male. Carapace brown cephalic part lighter. Dorsum of abdomen brown with a weak folium (Figs. 41–42).

Notes. No embolus cap was found in this species.

Distribution. Japan (Iriomotejima Is.).

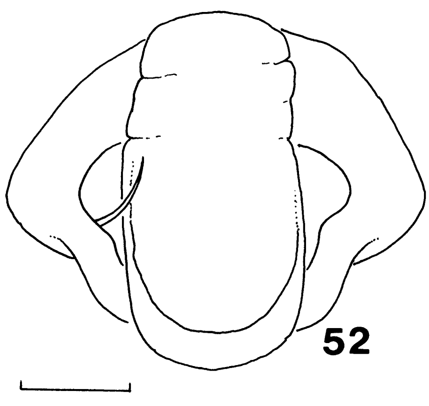
Etymology. The specific name is derived from the type locality.

Araneus ogatai new species
[Japanese name: Ogata-onigumo]
(Figs. 43–44, 52–53)

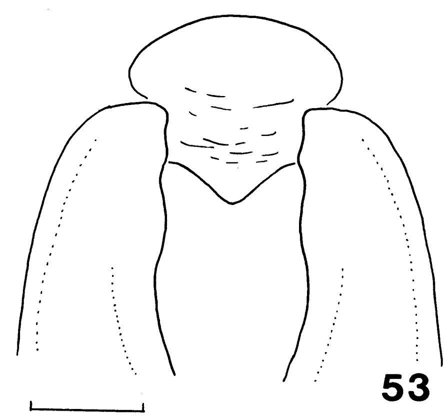
Type series. Holotype: ♀, Kurami, Kamo-cho, Tomata-gun, Okayama Pref., 25-V-1991, K. Nojima leg. (NSMT-Ar 4910). Paratypes: 1♀, Hosoyama, Asao-ku, Kawasaki-shi, Kanagawa Pref., 9-IV-1995, M. Ban leg. (NSMT-Ar 4911). 1♀, Shichirigahama, Kamakura-shi, Kanagawa Pref., 12-IV-2001, A. Tanikawa leg. (NSMT-Ar 4912). 1♀, Nishijima-cho, Hamamatsu-shi, Shizuoka Pref., 20-V-1998, K. Ogata leg. (NSMT-Ar 4913). 1♀, Toyofusa, Daisen-cho, Saihaku-gun, Tottori Pref., 19-V-1992, K. Nojima leg. (NSMT-Ar 4914). 1♀, Kikuchi-keikoku, Kikuchi-shi, Kumamoto Pref., H. Makihara leg. (NSMT-Ar 4915).

Diagnosis. The present new species resembles *A. komi* n. sp. As for the discriminating point, see the diagnosis of *A. komi*.

Description[based on the female holotype; male unknown]. Measurements (in mm). Body 4.80 long. Carapace 2.11 long, 1.62 wide. Length of legs [female holotype; tarsus + metatarsus + tibia + patella +



52



53

Figs. 52–53. *Araneus ogatai* n. sp. — 52, Epigynum, ventral view (holotype: NSMT-Ar 4910); 53, same, posterior view (paratype: NSMT-Ar 4911). (Scales: 0.1mm)

femur = total]: I, 0.57 + 1.21 + 1.27 + 0.82 + 1.67 = 5.54; II, 0.51 + 1.07 + 1.04 + 0.76 + 1.47 = 4.85; III, 0.38 + 0.60 + 0.55 + 0.53 + 1.00 = 3.06; IV, 0.42 + 0.95 + 0.89 + 0.65 + 1.42 = 4.33. Abdomen 3.30 long; 2.83 wide.

Female. Carapace longer than wide (length/width 1.30), cephalic part rather swollen. Median ocular area wider than long (length/width 0.96); almost as long in front as behind (anterior width/posterior width 1.04). Chelicera with 4 promarginal and 3 retromarginal teeth. Labium wider than long (length/ width 0.68). Sternum almost as long as wide (length/width 1.04). Length of leg I/length of carapace 2.63. Abdomen longer than wide (length/width 1.16), with weak shoulder humps. Epigynum (Figs. 52–53): scape longer than wide.

Coloration and markings in alcohol. Female. Carapace brown cephalic part lighter. Dorsum of abdomen brown with a weak folium (Figs. 43–44).

Notes. No embolus cap was found in this species.

Distribution. Japan (Honshu, Kyushu).

Etymology. The species is dedicated to Mr. Kiyoto Ogata, Aichi, who collected one of the paratypes.

Araneus miyashitai new species
[Japanese name: Koke-onigumo]
(Figs. 54–55, 58–61)

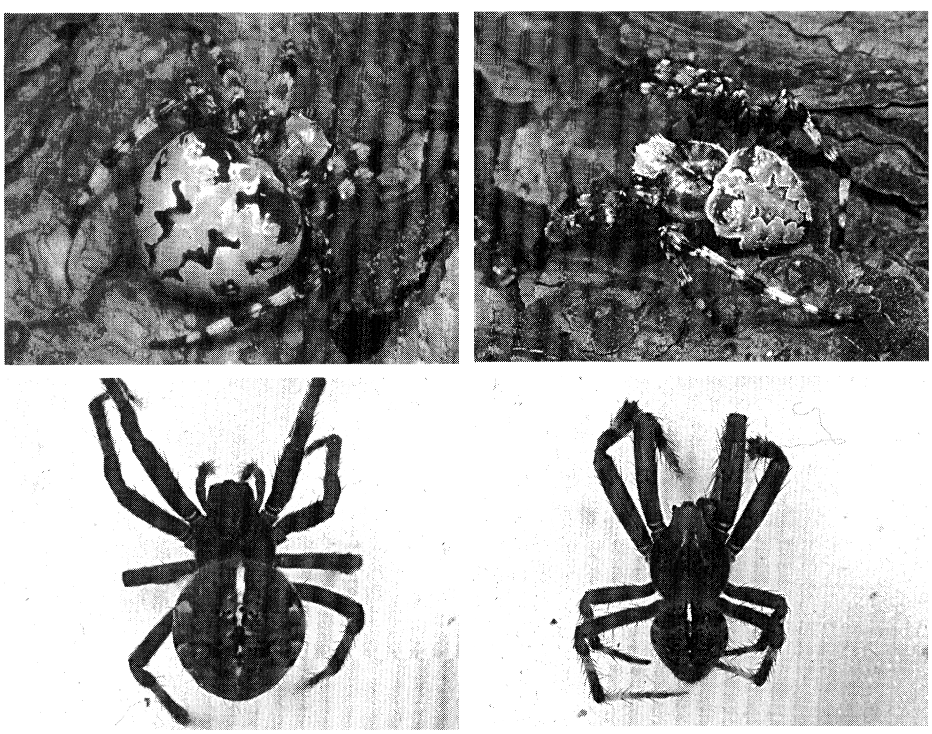
Aranea mongolica: Bösenberg & Strand 1906, p.236. [nec Simon 1895, misidentification]

Araneus mongolicus: Saito 1959, p.87, Yaginuma 1960, p.53. [nec Simon 1895, misidentification]

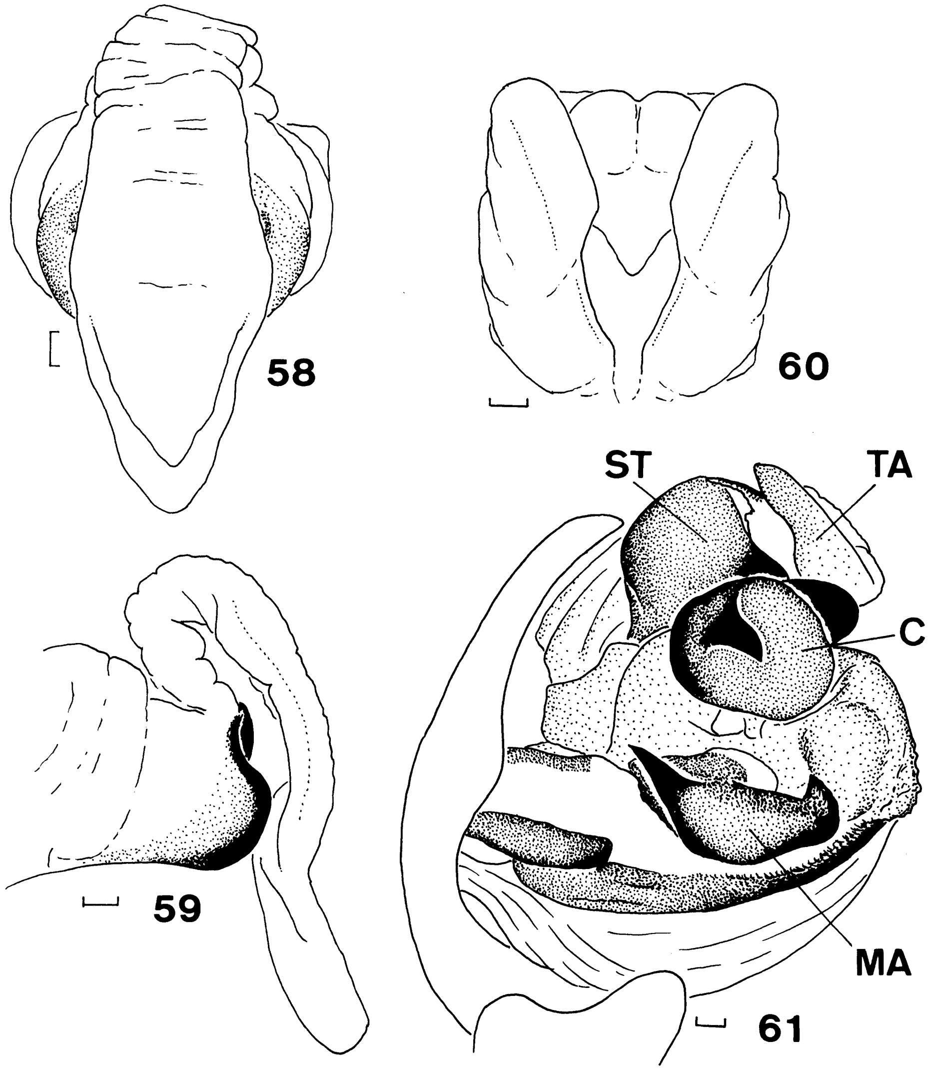
Araneus tartaricus: Yaginuma 1970, p.655; Shinkai & Takano 1984, p.58; Yaginuma 1986a, p.94. [nec Kroneberg 1875, misidentification]

Type series. Holotype: ♀, Susado, Horigane-mura, Minami-azumi-gun, Nagano Pref., 8-VIII-1990, A. Tanikawa leg. (NSMT-Ar 4916). Paratypes: 1♀, Tomakomai-shi, Hokkaido, 21-VII-1994, J. Ogula leg. (NSMT-Ar 4917). 1juv., Fudago, Kimitsu-shi, Chiba Pref., 24-V-2000, T. Miyashita leg. (became adult male after breeding on 23-VI-2000. NSMT-Ar 4918). 1juv., Kiyosumi, Amatsukominato-cho, Awa-gun, Chiba Pref., 4-VI-2000, T. Miyashita leg. (became adult female after breeding on 27-VI-2000. NSMT-Ar 4919). 1♀, Yoshino-cho, Yoshino-gun, Nara Pref., 15-VIII-1969, T. Yaginuma leg. (NSMT-Ar 4920). 1♀, Dando-uradani, Shitara-cho, Kita-shitara-gun, Aichi Pref., 16-VIII-2000, K. Ogata leg. (NSMT-Ar 4921).

Diagnosis. The present new species can be easily



Figs. 54–57. Habitus. — 54 (Top left), *Araneus miyashitai* n. sp., female; 55 (top right), same, male; 56 (bottom left), *Araneus mayumiae* n. sp., female (paratype: NSMT-Ar 4926); 57 (bottom right), same, male (holotype: NSMT-Ar 4922).

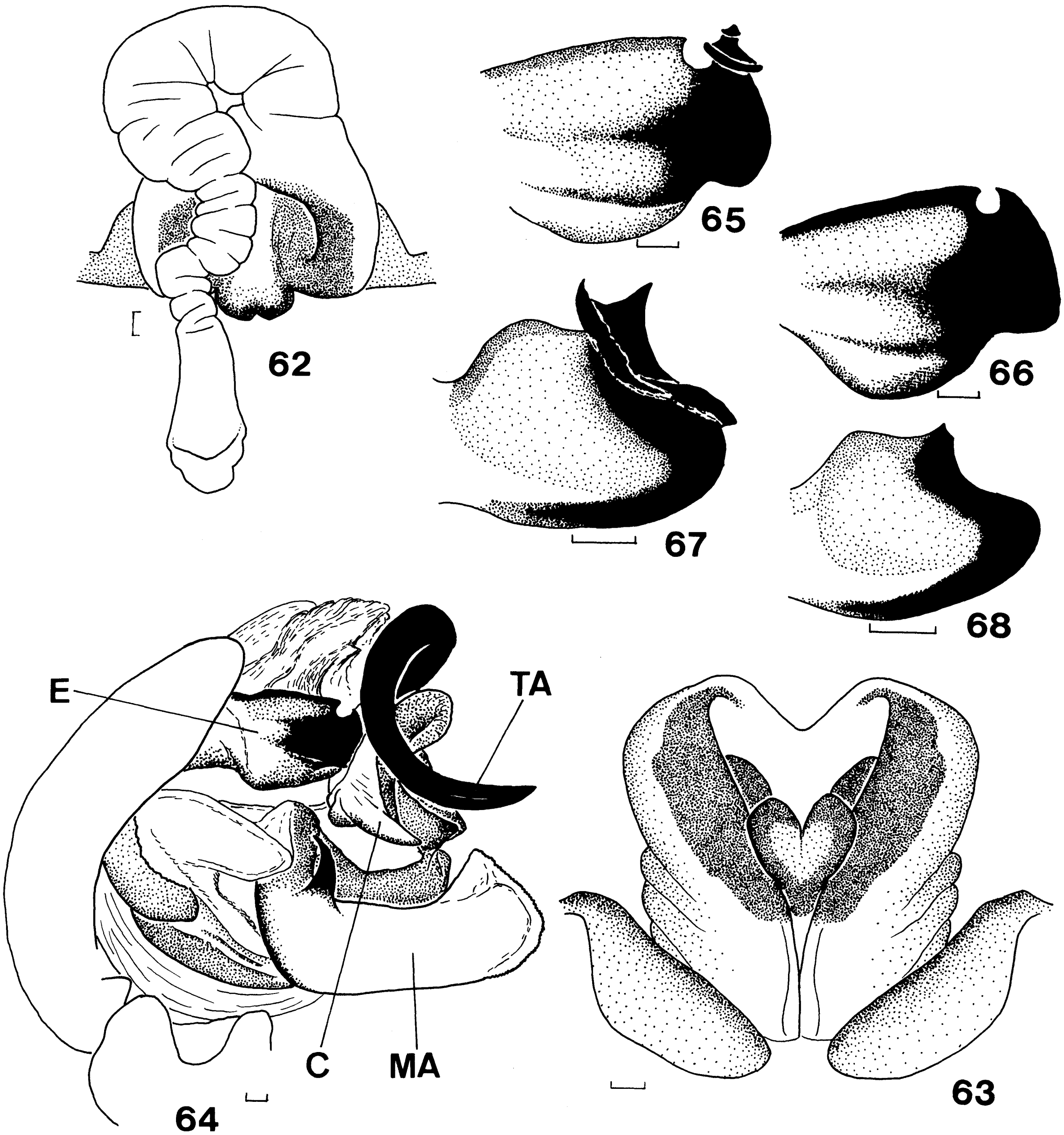


Figs. 58–61. *Araneus miyashitai* n. sp. — 58, Epigynum, ventral view (holotype: NSMT-Ar 4916); 59, same, lateral view (holotype: NSMT-Ar 4916); 60, same, posterior view (holotype: NSMT-Ar 4916), 61, male palp, prolateral view (paratype: NSMT-Ar 4918; C: conductor, MA: median apophysis, ST: subterminal apophysis, TA: terminal apophysis). (Scales: 0.1mm)

distinguished from the related species by the coloration of abdomen: whitish yellow in alcohol, green in living, with a black folium.

Description [based on the female holotype and male paratype]. Measurements (in mm). Body ♀ 15.50, ♂ 11.44 long. Carapace ♀ 7.40, ♂ 6.10 long; ♀ 6.00, ♂ 4.67 wide. Length of legs [female holotype/male paratype; tarsus + metatarsus + tibia + patella + femur = total]: I, 1.92 + 5.25 + 5.25 + 3.17 + 6.17 = 21.76/1.63 + 5.17 + 5.37 + 2.67 + 5.93 = 20.77; II, 1.83 + 4.83 + 4.75 + 3.08 + 5.92 = 20.41/1.70 + 5.07 + 4.80 + 2.67 + 5.77 =20.01; III, 1.42 + 2.75 + 2.75 + 2.17 + 4.25 = 13.34/ 1.13+2.50 + 2.40 + 1.73 + 4.20 = 11.96; IV, 1.67 + 4.50 + 4.50 + 2.71 + 6.63 = 20.01/1.33 + 4.43 + 3.87 + 2.17 + 5.83 = 17.63. Abdomen ♀ 10.63, ♂ 5.53 long; ♀ 10.69, ♂ 5.30 wide.

Female and male. Carapace longer than wide (length/width ♀ 1.23, ♂ 1.31). Median ocular area almost as wide as long (length/width ♀ 1.00, ♂ 0.98); slightly wider in front than behind (anterior width/posterior width ♀ 1.15, ♂ 1.01). Chelicera with 4 promarginal and 3 retromarginal teeth. Labium wider than long (length/ width ♀ 0.80, ♂ 0.87). Sternum longer than



Figs. 62–66. *Araneus mayumiae* n. sp. — 62, Epigynum, ventral view (paratype: NSMT-Ar 4926); 63, same posterior view (paratype: NSMT-Ar 4926); 64, male palp, prolateral view (holotype: NSMT-Ar 4922; C: conductor, E: embolus, MA: median apophysis, TA: terminal apophysis); 65, embolus with cap (paratype: NSMT-Ar 4927); 66, same without cap (paratype: NSMT-Ar 4929). Figs. 67–68. *Araneus saevus* (L. Koch 1872) — 67, Embolus with cap (Sweden, SMNH); 68, same, without cap (Canada). (Scales: 0.1mm)

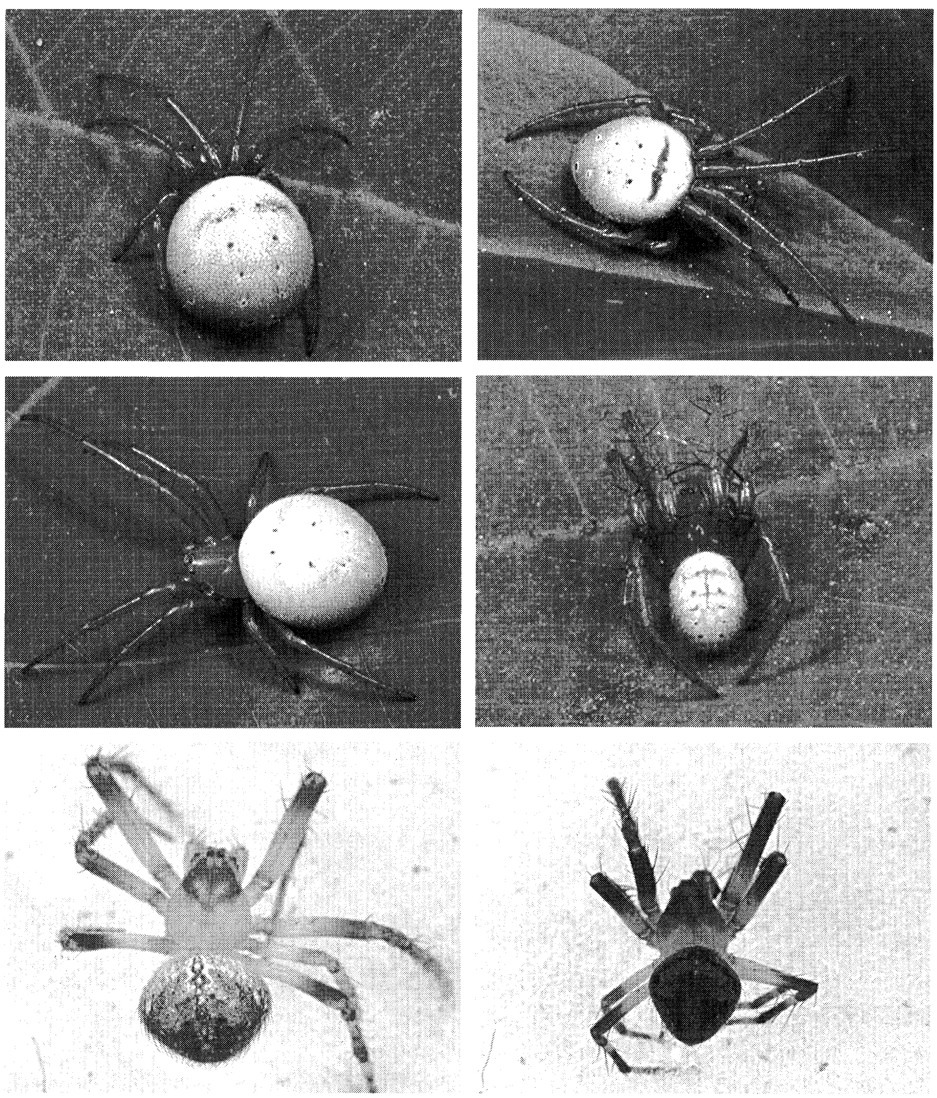
wide (length/width ♀1.17, ♂1.46). Length of leg I/length of carapace ♀2.94, ♂3.40. Male palp: terminal apophysis long and flattened (Fig. 61, TA). Subterminal apophysis with weakly sclerotized small triangular appendix other than well sclerotized black tip (Fig. 61, ST). Conductor with a bent hook (Fig. 61, C). Median apophysis transverse, one tip pointed and the other tip truncated (Fig. 61, MA). Abdomen as long as wide in female, longer than wide in male (length/width ♀1.00, ♂1.22), with shoulder hump. Epigynum (Figs. 58–60): scape long and wrinkled, copulatory openings facing ventrally.

Coloration and markings in alcohol. Female and male. Carapace brown, around cervical groove dark brown. Dorsum of abdomen pale yellow, green when living, with a black folium, and with black markings at

shoulder humps (Figs. 54–55).

Remarks. Aranea mongolica (Simon 1895) described by Bösenberg & Strand (1906) and *Araneus tartaricus* (Kroneberg 1875) recorded from Japan should be assigned to *A. miyashitai* n. sp. Bösenberg & Stand (1906) recorded *A. mongolica* from Japan based on two young female specimens collected in Yokohama. In 1936, Schenkel synonymized *Araneus mongolicus* with *A. tartaricus* (Kroneberg 1875). Thereafter, many Japanese araneologists (e.g. Shinkai & Tanakno 1984; Yaginuma 1986a) have followed Schenkel's (1936) treatment. On the other hand, Yaginuma (1970, 1986a, 1990) consistently mentioned that some records of *A. tartaricus* from Japan were questionable because the Japanese specimens were obtained only from the southern part of the country whereas the type locality of the species is Tartar. Although I could not examine the type specimens, I examined a female and a juvenile specimens labeled as *A. tartaricus* from Afghanistan preserved in Zoological Museum, University of Copenhagen. The general appearance and the shape of epigynum of the Afghanistan specimens exactly agreed with Kroneberg's (1875) original figures, but those of the Japanese specimens agree with neither Kroneberg's figures nor those of Afghanistan specimens. Consequently, it is highly possible that Japanese records of *A. tartaricus* have been caused by misidentification.

Distribution. Japan (Hokkaido, Honshu).



Figs. 69–74. Habitus — 69, *Araneus amabilis* n. sp., female; 70, same, other female; 71, same, another female; 72, same, male; 73, *Araneus acusisetus* Zhu & Song 1994, female (NSMT-Ar 4942) ; 74, same, male (NSMT-Ar 4943).

Etymology. The species is dedicated to Dr. Tadashi Miyashita, University of Tokyo, who collected the male paratype of the species.

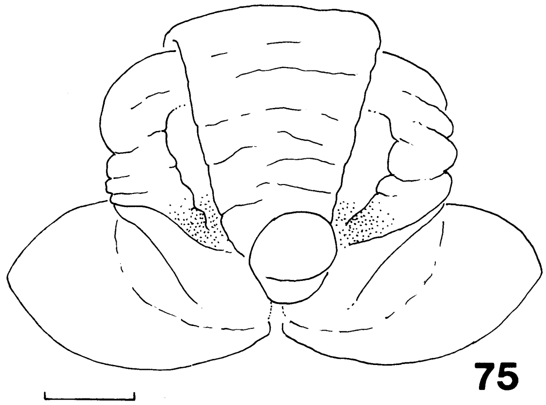
Araneus mayumiae new species
[Japanese name: Mayumi-onigumo]
(Figs. 56–57, 62–66)

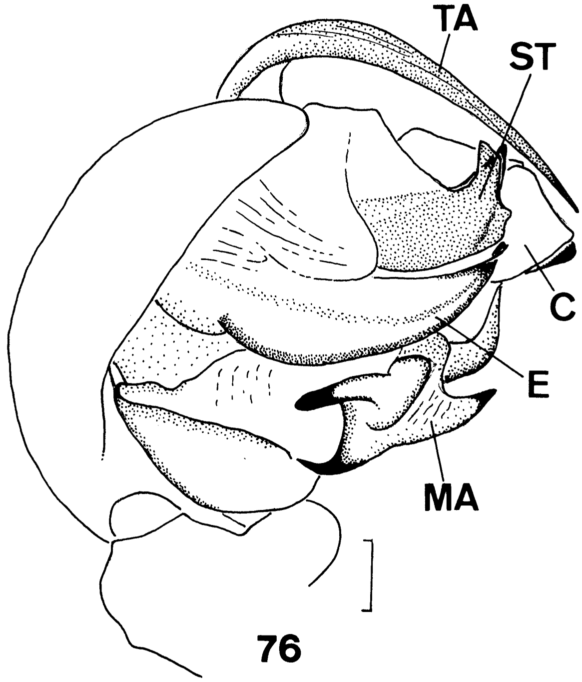
Type series. Holotype: ♂, Mitsumata, Kamishihoro-cho, Kato-gun, Hokkaido, 23-VIII-1992, K. Miyashita leg. (NSMT-Ar 4922). Paratypes: 1 ♂, Sounkyo, Kamikawa-cho, Kamikawa-gun, Hokkaido, 15-VIII-1963, T. Akiyama leg. (NSMT-Ar 4923). 1♂, Lake Taisetsu, Kamikawa-cho, Kamikawa-gun, Hokkaido, 29-VIII-2000, N. Yasuda leg. (NSMT-Ar 4924). 1♀, Mitsumata, Kamishihoro-cho, Kato-gun, Hokkaido, 15-VIII-1987, M. Matsuda leg. (NSMT-Ar 4925). 1♀, 20-VIII-1989 (NSMT-Ar 4926), 1♂, 22-VIII-1995 (NSMT-Ar 4927), 1♀, 25-IX-1995 (NSMT-Ar 4928), 1♂, 3-IX-1995 (NSMT-Ar 4929), Nukabira, Kamishihoro-cho, Kato-gun, Hokkaido, M. Matsuda leg. 1♀, Otofuke River, Kamishihoro-cho, Kato-gun, Hokkaido, 14-IX-1995, T. Hiki leg. (NSMT-Ar 4930). 1♀, Lake Shikaribetsu-ko, Shikaoi-cho, Kato-gun, Hokkaido, 15-X-1995, I. Fukuchi leg. (NSMT-Ar 4931).

Diagnosis. The present new species closely resembles *Araneus saevus* (L. Koch 1872), but can be separated from the latter by the shape of the embolus and the embolus cap of male palp (compare Figs. 65–66 with Figs. 67–68).

Description [based on one of female paratypes from Nukabira, Hokkaido (NSMT-Ar 4926) and male holotype]. Measurements (in mm). Body ♀15.75, ♂ 13.00 long. Carapace ♀7.38, ♂7.33 long; ♀5.75, ♂ 5.75 wide. Length of legs [female holotype/male paratype; tarsus + metatarsus + tibia + patella + femur = total]: I, 2.08 + 5.69 + 6.00 + 3.31 + 7.23 = 24.31/1.92 + 5.77 + 7.15 + 3.31 + 7.92 = 26.07; II, 2.00 + 5.31 + 5.31 + 3.23 + 6.69 = 22.54/1.69 + 5.00 + 5.54 + 3.23 + 7.00 = 22.46; III, 1.54 + 3.15 + 3.23 + 2.23 + 4.77 = 14.92/1.46 + 3.46 + 3.62 + 2.23 + 5.23 = 16.00; IV, 1.73 + 5.15 + 5.08 + 2.85 + 7.08 = 21.89/1.69 + 5.62 + 5.54 + 2.73 + 7.38 = 22.96. Abdomen ♀10.38, ♂7.15 long; ♀ 9.25, ♂5.62 wide.

Female and male. Carapace longer than wide (length/width ♀1.28, ♂1.28). Median ocular area almost as wide as long (length/width ♀0.94, ♂0.90); slightly wider in front than behind (anterior width/posterior width ♀1.21, ♂1.19). Chelicera with 3 (patratype) or 4 (holotype) promarginal and 4 retromarginal teeth. Labium wider than long (length/width ♀0.78, ♂0.79). Sternum longer than wide (length/width ♀1.19, ♂1.30).


75



76

Figs. 75–76. *Araneus amabilis* n. sp. — 75, Epigynum, ventral view (holotype: NSMT-Ar 4932); 76, male palp, prolateral view (paratype: NSMT-Ar 4940; C: conductor, E: embolus, MA: median apophysis, ST: subterminal apophysis, TA: terminal apophysis). (Scales: 0.1mm)

Length of leg I/length of carapace ♀3.29, ♂3.56. Male palp: terminal apophysis well sclerotized, long and winding (Fig. 64, TA). Median apophysis oblong, basally with a prong (Fig. 64, MA). Abdomen longer than wide (length/width ♀1.12, ♂1.27), with weak shoulder humps. Epigynum (Figs. 62–63): scape long and wrinkled.

Coloration and markings in alcohol. Female and male. Carapace brown. Dorsum of abdomen brown, with a black folium, and with black and yellow markings along border, and with a longitudinal white midline at anterior part (Figs. 56–57).

Distribution. Japan (Hokkaido).

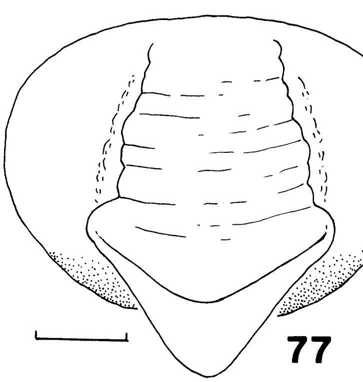
Etymology. The species is dedicated to Ms. Mayumi Matsuda, Hokkaido, who offered me many specimens of this species used in this study.

Araneus amabilis new species
[Japanese name: Chura-onigumo]
(Figs. 69–72, 75–76)

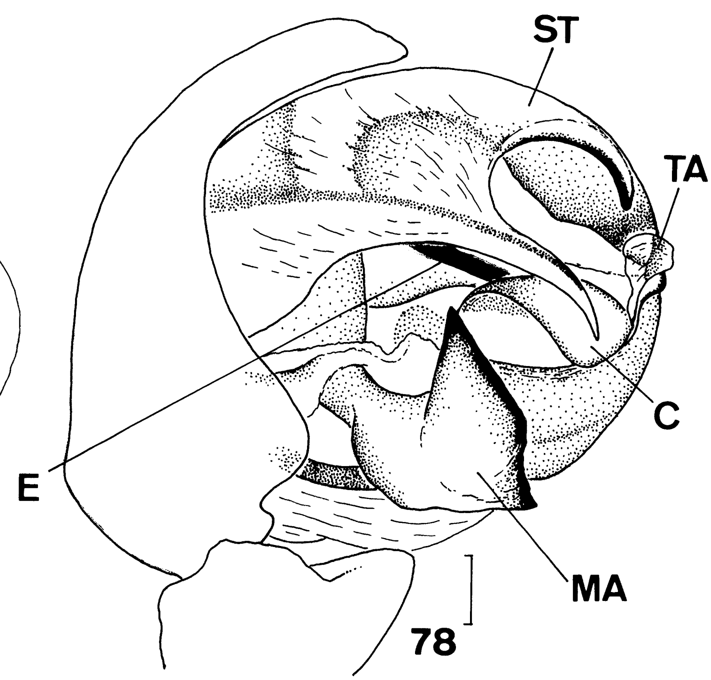
Type series. Holotype: ♀, Sonai, Iriomotejima Is. Okinawa Pref., 31-XII-1989, A. Tanikawa leg. (NSMT-Ar 4932). Paratypes: 1♂, Amami-oshima Is., Kagoshima Pref., 24-VI-1995, M. Ban leg. (NSMT-Ar 4933). 1♀, Kushi, Okinawajima Is., Okinawa Pref., 7-VI-1997, T. Sasaki leg. (NSMT-Ar 4934). 1♂, Ohara, Iriomotejima Is., Okinawa Pref., 30-III-1986, A. Tanikawa leg. (NSMT-Ar 4935). 1♀, Otomi, Iriomotejima Is., Okinawa Pref., 28-III-1986, A. Tanikawa leg. (NSMT-Ar 4936). 1♀, 1-IV-1983 (NSMT-Ar 4937), 1♂, 13-VIII-1992 (NSMT-Ar 4938), Komi, Iriomotejima Is., Okinawa Pref., A. Tanikawa leg. 1♂, 31-III-1986 (NSMT-Ar 4939), 1♂, 2-I-1989 (NSMT-Ar 4940), 1♀, 24-XII-1990 (NSMT-Ar 4941), Shirahama, Iriomotejima Is., Okinawa Pref., A. Tanikawa leg.

Diagnosis. The present new species resembles *Araneus pentagrammicus* (Karsch 1879), but can be separated from the latter by the following points. The epigynum of *A. amabilis* bears a pair of projection at basal part (Fig. 75), but without such a projection in *A. pentagrammicus*. The subterminal apophysis of male palp in *A. amabilis* is boot-shaped (Fig. 76, ST), but that of *A. pentagrammicus* is leaf-shaped.

Description [based on the female holotype and one of male paratypes from Iriomotejima Is. (NSMT-Ar 4940)]. Measurements (in mm). Body ♀6.85, ♂4.75 long. Carapace ♀2.74, ♂2.38 long; ♀2.23, ♂1.94 wide. Length of legs [female holotype/male paratype; tarsus + metatarsus + tibia + patella + femur = total]: I, 1.07 + 2.90 + 2.37 + 1.30 + 2.87 = 10.51/1.07 + 2.84 + 2.37 + 1.04 + 2.64 = 9.96; II,



77



78

Figs. 77–78. *Araneus acusisetus* Zhu & Song 1994 — 77, Epigynum, ventral view (NSMT-Ar 4942); 78, male palp, prolateral view (NSMT-Ar 4943; C: conductor, E: embolus, MA: median apophysis, ST: subterminal apophysis, TA: terminal apophysis). (Scales: 0.1mm)

0.93 + 2.37 + 1.93 + 1.13 + 2.57 = 8.93/0.93 + 2.29 + 1.77 + 0.91 + 2.37 = 8.27; III, 0.70 + 1.10 + 0.93 + 0.77 + 1.70 = 5.20/0.63 + 1.04 + 0.86 + 0.64 + 1.59 = 4.76; IV, 0.73 + 2.10 + 1.70 + 1.07 + 2.42 = 8.02/0.71 + 1.91 + 1.51 + 0.83 + 2.29 = 7.25. Abdomen ♀4.18, ♂2.45 long; ♀3.65, ♂1.96 wide.

Female and male. Carapace longer than wide (length/width ♀1.23, ♂1.23). Median ocular area slightly wider than long (length/width ♀0.94, ♂0.97); wider in front than behind (anterior width/posterior width ♀1.32, ♂1.43). Chelicera with 4 promarginal and 3 retromarginal teeth. Labium wider than long (length/width ♀0.88, ♂0.77). Sternum longer than wide (length/width ♀1.26, ♂1.25). Length of leg I/length of carapace ♀3.84, ♂4.18. Male palp: terminal apophysis long, apically pointed (Fig. 76, TA). Subterminal apophysis boots-shaped (Fig. 76, ST). Abdomen longer than wide (length/width ♀1.14 ♂1.25), without shoulder humps. Epigynum (Fig. 75): scape wrinkled, basally with a pair of projection.

Coloration and markings in alcohol. Female and male. Carapace pale brown (green when living). Dorsum of abdomen pale yellow (pale green when living), with a black marking at front and several pairs of black spots at posterior part (Figs. 69–72).

Distribution. Japan (Amami-oshima Is., Okinawa-jima Is., Iriomotejima Is.).

Etymology. The specific name, meaning "lovely" in Latin, is derived from the general appearance of the species.

Araneus acusisetus Zhu & Song 1994
[Japanese name: Okuma-yamiiro-onigumo]
(Figs. 73–74, 77–78)

Araneus acusisetus Zhu & Song in Zhu et al. 1994, p.27, fig. 2 [Holotype: ♂, Badong County, Hubei Province, China, 22-V-1989, M. Zhu & D. Song leg., not examined.]; Yin et al. 1997, p.143, fig. 58; Song, Zhu & Chen 1999, p.236, figs. 134K-L, 146K.

Araneus sp.: Yaginuma 1986b, p.188, figs. 1A, 1C; Chikuni 1989, p.209, fig. 28;

Specimens measured. 1♀, Mt. Inunakiyama, Fukuoka Pref., 23-IV-1974, C. Okuma leg. (NSMT-Ar 4942). 1♂, Yoshikawa, Kayo-cho, Jobo-gun, Okayama Pref., 3-V-1991, K. Nojima leg. (NSMT-Ar 4943). As for the other specimens examined in this paper, see appendix.

Diagnosis. The present species resembles *Araneus fuscocoloratus* (Bösenberg & Strand 1906), but can be separated from the latter by the following points. The epigynal scape of *A. acusisetus* is wrinkled and flexible (Fig. 77), but that of *A. fuscocoloratus* is short and not flexible. The median apophysis of *A. acusisetus* distally has a one point (Fig. 78), but that of *A. fuscocoloratus* has two points.

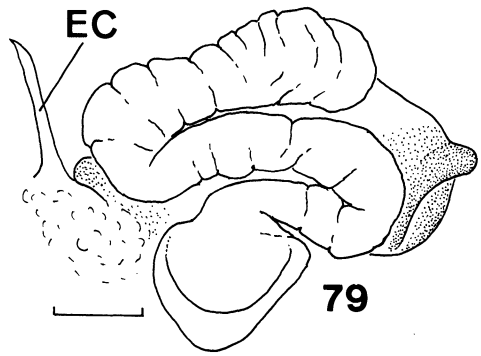


Fig. 79. *Araneus viperifer* Schenkel 1963, epigynum, ventral view (holotype: MNHN B2661; EC, embolus cap). (Scale: 0.1mm)

Description[based on the Japanese specimens]. Measurements (in mm). Body ♀5.50, ♂4.03 long. Carapace ♀2.69, ♂2.49 long; ♀2.11, ♂1.93 wide. Length of legs [female holotype/male paratype; tarsus + metatarsus + tibia + patella + femur = total]: I, 1.12 + 2.59 + 2.84 + 1.32 + 3.40 = 11.24/1.15 + 2.85 + 3.05 + 1.15 + 3.27 = 11.47; II, 0.92 + 2.00 + 2.16 + 1.18 + 2.76 = 9.02/0.90 + 2.03 + 1.93 + 0.97 + 2.33 = 8.16; III, 0.60 + 1.08 + 0.96 + 0.74 + 1.76 = 5.14/0.55 + 0.93 + 0.77 + 0.57 + 1.50 = 4.32; IV, 0.68 + 1.76 + 1.58 + 0.96 + 2.68 = 7.66/0.97 + 1.53 + 1.27 + 0.73 + 2.17 = 6.67. Abdomen ♀3.27, ♂2.11 long; ♀3.27, ♂2.18 wide.

Female and male. Carapace longer than wide (length/width ♀1.27, ♂1.29). Median ocular area wider than long (length/width ♀0.76, ♂0.83); wider in front than behind (anterior width/posterior width ♀1.42, ♂1.23). Chelicera with 4 promarginal and 3 retromarginal teeth. Labium wider than long (length/width ♀0.78, ♂0.72). Sternum longer than wide (length/width ♀1.18, ♂1.09). Length of leg I/length of carapace ♀4.18, ♂4.61. Male palp: terminal apophysis small, transparent (Fig. 78, TA). Subterminal apophysis large, dome-shaped (Fig. 78, ST). Abdomen almost as long as wide (length/width ♀1.00 ♂0.97), without a shoulder hump. Epigynum (Fig. 77): scape wrinkled and flexible.

Coloration and markings in alcohol. Female and male. Carapace brown, head region darker. Dorsum of

abdomen dark brown with a weak folium, and with a butterfly-shaped light color marking at anterior part (Figs. 73–74).

Distribution. Japan (Honshu, Shikoku, Kyushu, Iriomotejima Is.), China.

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Appendix

Specimens examined, other than the type series designated in this paper.

Araneus nojimai. 4♂, 3-VI-1985, 1♂, 10-VI-1985, 2♂, 17-VI-1985, 3♂, 24-VI-1985, 1♂, 16-V-1986, 2♂. 6-VI-1986, Mt. Monbetsu, Monbetsu-shi, Hokkaido, N. Tsurusaki leg. 1♂, Yagishiri Is., Haboro-cho, Tomamae-gun, Hokkaido, 1-VI-1982, K. Kumada leg. 2♀, Katashina-

mura, Tone-gun, Gunma Pref., 3-5-VII-1981, A. Tanikawa leg. 1♀, Chichibu, Saitama Pref., 3-V-1987, A. Tanikawa leg. 1♀, Otaki-mura, Chichibu-gun, Saitama Pref., 13-V-2000, M. Nagasaki leg. 1♀, Hakone-machi, Asigarashimo-gun, Kanagawa Pref., 9-VII-1984, N. Tanaka leg. 1♀, Tsugaike-koen, Hakuba-mura, Kita-azumi-gun, Nagano Pref., 15-VI-1994, M. Ban leg. 3♀4♂, Amagi-tôge, Kawazu-cho, Kamo-gun, Shizuoka Pref., 19-V-1984, K. Kumada leg. 1♂, Tomiyama-mura, Kitashitara-gun, Aichi Pref., 5-V-1998, K. Ogata leg. 2♀1♂, 6-V-1996, 1♀1♂, 5-V-1997, Uradani, Sera-cho, Kitasera-gun, Aichi Pref., K. Ogata leg. 1♀1♂, Nishiawakura-son, Aida-gun, Okayama Pref., 2-VI-1990, K. Nojima leg. 1♀, Kurami, Kamo-cho, Tomata-gun, Okayama Pref., 28-V-1991, K. Nojima leg. 1♀, Mt. Kenashi, Shinjô-son, Maniwa-gun, Okayama Pref., 20-V-1990, K. Nojima leg. 1♀1♂, 1-VI-1994, same locality and same collector. 4♀3♂, Mt. Hômanzan, Fukuoka Pref., 29-IV-1977, K. Yamagishi leg. 1♂, Mt. Hakuchô, Izumi-mura, Yatsushiro-gun, Kumamoto Pref., 27-V-1978, C. Okuma leg.

Araneus tsurusakii. 1♀, Mt. Monbetsu, Monbetsu-shi, Hokkaido, 17-VI-1985, N. Tsurusaki leg. 1♂, Mido, Iwate-machi, Iwate-gun, Iwate Pref., 20-VI-1975, K. Yamagishi leg. 2♀, 7-VII-1985, 1♀, 6-VII-1986, 1♀, 7-VI-1987, Lake Izunuma, Hasama-cho, Tome-gun, Miyagi Pref., A. Tanikawa leg. 1♀, Minenoyakushi, Tsukui-machi, Tsukui-gun, Kanagawa Pref., 3-VI-1990, A. Tanikawa leg. 1♀1♂, Tsukhi-machi, Tsukui-gun, Kanagawa Pref., 19-VII-1993, K. Kumada leg. 1♂, Kiyakawa-mura, Aiko-gun, Kanagawa Pref., 29-V-1971, K. Kumada leg. 1♂, Subashiri, Gotenba-shi, Sizuoka Pref., 12-VIII-1995, M. Sadamoto leg. 1♂, Onakayama, Wake-cho, Wake-gun, Okayama Pref., 13-V-1995, K. Nojima leg.

Araneus viperifer. Holotype: ♀, West Tschekiang, China, IV-1872 (MNHN B2661)

Araneus hoshi. 6♀1♂, Katashina-mura, Tone-gun, Gunma Pref., 3-5-VII-1981, A. Tanikawa leg. 1♀, Wakasugi, Nishiawakura-son, Aida-gun, Okayama Pref., 2-VI-1990, K. Nojima leg.

Araneus ogatai. 1♀, Zenpukuji Park, Suginami-ku, Tokyo, 21-IV-1985, F. Inoue leg. 1♀, Mt. Kurakake, Sera-cho, Kitasera-gun, Aichi Pref., 4-V-1994, K. Ogata leg. 1♀, Mt. Kuju, Kuju-machi, Naoiri-gun, Oita Pref., 6-7-VI-1978, H. Makihara leg.

Araneus tartaricus. 1♀, Marrak, Koh-i-Baba, Afghanistan, 14-VIII-1948, N. Haarløv leg. (ZMK). 1juv. Pirzada, Afghanistan (ZMK).

Araneus saevus. 1♀, 6-VIII-1989, 1♂, 7-VIII-1989, Lake Waputa, Alberta, Canada, A. Tanikawa leg. 1♀, Lake Louise, Alberta, Canada, 8-VIII-1989, A. Tanikawa leg. 1♂, Björbo, Dalarna, Sweden, S. Enmalm leg. (SMNH). 1♂, Lycksele, Lycksele Lappmark, O. Hedqvist leg. (SMHN). 1♂, Lekhyttan, Närke, Sweden, R. Wallström leg. (SMHN).

Araneus amabiris. 1♀, Tatsugo, Amami-oshima Is., Kagoshima Pref., 30-XII-1995, A. Tanikawa leg. 1♀, Honcha-tôge Pass, Amami-oshima Is., Kagoshima Pref., 1-I-1996, A. Tanikawa. 1♀, Utsumi, Amami-oshima Is., Kagoshima Pref., 31-XII-1995, A. Tanikawa leg. 1♀, Kijoka, Okinawajima Is., Okinawa Pref., 11-VIII-1998, A. Tanikawa leg. 1♀, 12-14-VII-1996, 1♀, 23-25-VI-1995, Nago, Okinawajima Is., Okinawa Pref., A. Shinkai leg. 1♀, Nago, Okinawajima Is., Okinawa Pref., 30-X-1994, A. Tanikawa leg. 1♀, Gushikawa, Kumejima Is., Okinawa Pref., 20-III-1995, T. Hiramatsu leg. 1♀, 29-III-1986, 1♀, 2-I-1997, Komi, Iriomotejima Is., Okinawa Pref., A. Tanikawa leg. 1♀, 3-I-1991, 1♀, 2-I-1986, Funaura, Iriomotejima Is., Okinawa Pref., A. Tanikawa leg. 1♀, 28-XII-1987, 3♀, 23-XII-1991, Urauchi, Iriomotejima Is., Okinawa Pref., A. Tanikawa leg. 1♀, 31-XII-1989, 2♀, 26-XII-1991, Sonai, Iriomotejima Is., Okinawa Pref., A. Tanikawa leg. 1♀, 28-XII-1985, 1♀, 31-XII-1986, Shirahama, Iriomotejima Is., Okinawa Pref., A. Tanikawa leg.

Araneus acusisetus. 2♀, 1-VI-1986, 3♀, 5-VI-1986, Lake Izunuma, Hasama-cho, Tome-gun, Miyagi Pref., A. Tanikawa leg. 1♀, Inawashiro-Machi, Maya-gun, Fukushima pref., 25-VIII-1995, M. Sadamoto leg. 1♀, Mt. Imoriyama, Aizuwakamatsu-shi, Fukushima Pref., 28-VIII-1995, M. Sadamoto leg. 1♀, Mt. Yamizosan, Daigo-machi, Kuji-gun, Ibaraki Pref., 5-VIII-1996, M. Sadamoto leg. 1♀, Tsukuba-shi, Ibaraki Pref., IV-1976, A. Tanikawa leg. 1♂, 30-IV-1994, 1♀, 15-V-1994, 1♀, 4-VI-1994, Sakaishi, Hanno-shi, Saitama Pref., T. Kimura leg. 8♀2♂, same locality, 2-VI-1990, K. Kumada leg. 1♀, Kimigahama, Choshi-shi, Chiba Pref., 29-V-1993, M. Nagashima leg. 1♀, 2-V-1993, 1♀, 2-VI-1996, Tsuchiuki, Sakura-shi, Chiba Pref., M. Nagashima leg. 2♀, Kori, Okutama-machi, Nishi-tama-gun, Tokyo, 10-V-1981, A. Tanikawa leg. 1♀, Mt. Takaosan, Hachioji-shi, Tokyo, 15-V-1983, S. Tazoe leg. 1♀. Green Fund Forest, Hachioji-shi, Tokyo, 12-VII-1995, M. Sadamoto leg. 1♀, Mt. Enkaizan, Isogo-ku, Yokohama-shi, Kanagawa Pref., 29-IV-1983, K. Sato leg. 2♀, Kama-riya, Kanazawa-ku, Yokohama-shi, Kanagawa Pref., 29-IV-1987, A. Tanikawa leg. 1♀, Hanbara, Aikawa-machi, Aiko-gun, Kanagawa Pref., 13-VI-1971, K. Kumada leg. 3♀, Kakuregawa, Aikawa-cho, Aiko-gun, Kanagawa Pref., 2-VI-1989, K. Kumada leg. 1♀, Miyagase, Kiyokawa-mura, Aiko-gun, Kanagawa Pref., 19-VI-1997, M. Sadamoto leg. 7♀2♂, Mt. Daiyûzan, Minami-ashigara-shi, Kanagawa Pref., 14-V-1990, K. Kumada leg. 1♀, Daibo, Hakushu-machi, Kitakoma-gun, Yamanashi Pref., 23-VII-1999, M. Sadamoto leg. 1♀, Sawai, Fujino-cho, Yamanashi Pref., 30-IV-1993, M. Sadamoto leg. 1♀, Hotaka-machi, Minamia-zumi-gun, Nagano Pref., 27-VII-1985, M. Sadamoto leg. 1♀, Enrei-kôgen, Shiojiri-shi, Nagano Pref., 26-VII-1999, M. Sadamoto leg. 1♂, Ichiyama, Amagiyugashima-cho, Tagata-gun, Shizuoka Pref., 2-V-1984, K. Kumada leg. 2♀, Marubi, Fuji-shi, Shizuoka Pref., 2-VI-1985, A Tanikawa leg. 1♀, Takao, Ukyo-ku, Kyoto Pref., 5-V-2000, A. Shinkai leg. 2♀, Doi, Sakuto-cho, Aida-gun, Okayama Pref., 25-V-1989, K. Nojima leg. 1♀, Nishibara, Nagi-cho, Katsuta-gun, Okayama Pref., 16-V-1992, K. Nojima leg. 1♀1♂, Aoyagi, Kamo-cho, Tomata-gun, Okayama Pref., 15-V-1990, K. Nojima leg. 1♀, Kamitanomura, Tsuyama-shi, Okayama Pref., 29-V-1989, K. Nojima leg. 1♀1♂, Hiromo, Kamogawa-cho, Mitsu-gun, Okayama Pref., 16-V-1989, K. Nojima leg. 3♀, Takatomi, Kamogawa-cho, Mitsu-gun,

Okayama Pref., 2-V-1990, K. Nojima leg. 1♀, Narai, Takahashi-shi, Okayama Pref., 30-IV-1991, K. Nojima leg. 1♂, Taishaku-kyô, Jinseki-cho, Jinseki-gun, Hiroshima Pref., 6-V-1980, H. Makihara leg. 1♀1♂, Omogo-mura, Kamiukena-gun, Ehime Pref., 21-23-V-1967, C. Okuma leg. 1♂, Mt. Tachibanayama, Fukuoka-shi, Fukuoka Pref., 28-IV-1976, C. Okuma leg. 1♀, 4-V-1952, 1♂, 5-V-1968, Mt. Inunakiyama, Kasuya-gun, Fukuoka Pref., C. Okuma leg. 1♀, Shirahama, Iriomotejima Is., Okinawa Pref., 27-VII-1963, Y. Miyatake leg.

グモ，カガリグモ改称）および *Clubiona parvula*（S. Saito 1933）new combination（ヌカアブラフクログモ，改称）は *Steatoda* から新たに転属した．日本産の3種 *Enoplognatha japonica* Bösenberg & Strand 1906 ヤマトコノハグモ，*E. dorsinotata* Bösenberg & Strand 1906 セマダラコノハグモおよび *Steatoda albimaculosa*（S. Saito 1934）ブチモチイグモをヨーロッパから北アメリカまで広く分布する *E. tecta*（Keyserling 1884）(和名にはヤマトコノハグモを当てる）の，また日本産の *E. transversifoveata*（Bösenberg & Strand 1906）と中国産の *E. hangzhouensis* Zhu 1998 を *E. abrupta*（Karsch 1879）カレハヒメグモの，さらに中国産の *E. submargarita* Yaginuma & Zhu 1992 を日本で記載された *E. margarita* Yaginuma 1964 シロタマヒメグモの新参異名とした．2つの種名 *S. japonica*（Dönitz & Strand 1906)オスナキグモおよび *S. minus*（Dönitz & Strand 1906）コヌサグモを *nomina dubia* 疑問名とし，本論では扱っていない．なお，*Steatoda* 属の和名カガリグモ属はそのまま使用する．

日本及び台湾産のウエムラグモ科及びネコグモ科のクモ7種（pp. 53–65）

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日本及び台湾産の標本に基づいて，ウエムラグモ科の5種及びネコグモ科の2種を報告した．ウラシマグモ属の1新種を *Phrurolithus vulpes* コガネウラシマグモ（新称）と命名して記載し，*Phrurolithus sinicus* Zhu & Mei 1982 コツブウラシマグモ（新称），*P. taiwanicus* Hayashi & Yoshida 1993 タイワンウラシマグモ（新称），*P. labialis* Paik 1991 ウスイロウラシマグモ（新称）及び *Corinna gulosa*（Thorell 1878）ハマカゼハチグモ（新称）の4種を日本新記録種として報告した．*Corinna* ハチグモ属（新称）のクモが日本から記録されたのは初めてである．また，*Phrurolithus lynx* Kamura 1994 ヤマネコウラシマグモの台湾における分布を明らかにした．さらに，*Phrurolithus taiwanicus* の雄とジガバチグモ属の *Castianeira shaxianensis* Gong 1983 オビジガバチグモの雄を初めて記載した．

日本産オニグモ属の12新種および1新記録種（pp. 67–90）

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日本各地から採集された標本にもとづき，次の12新種および1新記録種を記載した．*Araneus nojimai* マメオニグモ，*A. tsurusakii* カラオニグモ，*A. ryukyuanus* リュウキュウオニグモ（新称），*A. borealis* キタマメオニグモ（新称），*A. iriomotensis* イリオモテオニグモ（新称），*A. yasudai* ヤスダヒメオニグモ（新称），*A. hoshi* ホシマメオニグモ（新称），*A. komi* コミオニグモ（新称），*A. ogatai* オガタオニグモ（新称），*A. miyashitai* コケオニグモ，*A. mayumiae* マユミオニグモ（新称），*A. amabilis* チュラオニグモ（新称），*A. acusisetus* Zhu & Song 1994 オオクマヤミイロオニグモ（新称）．

トリノフンダマシ属の2新シノニム（pp. 91–93）

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ソメワケトリノフンダマシ *Cyrtarachne induta* Yaginuma 1960 をアカイロトリノフンダマシ *C. yunoharuensis* Strand, 1918 の，クロトリノフンダマシ *C. nigra* Yaginuma 1960 をシロオビトリノフンダマシ *C. nagasakiensis* Strand 1918 のそれぞれ新参シノニムとした．